UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF WEST VIRGINIA
AT CHARLESTON

JAMES COLEMAN and LARRY KIMBRO and CARL MOTEN and ADELLE NEWBELL and PHILLIP SCHULTE and NAOMI TACKETT and DAVID TAMPLIN and CAROLYN TURNER and PATRICIA WARD and TERRY WHITE, residents of the State of West Virginia, on behalf of themselves and on behalf of others similarly situated

Plaintiffs,

v. **Civil Action No. 2:11-0366**

UNION CARBIDE CORPORATION, a Delaware corporation, having its principal place of business in the State of West Virginia and THE DOW CHEMICAL COMPANY, a Delaware corporation, with its principal place of business in Michigan, and EMC ALLOY, L.P. f/k/a ELKEM METALS COMPANY -- ALLOY, L.P., a Norwegian corporation, having its principal offices in the State of Pennsylvania, and GLOBE SPECIALTY METALS, INC., a Delaware corporation, having its principal place of business in the State of New York, and GLOBE METALLURGICAL, INC., a Delaware corporation, having its principal place of business in the State of Ohio, and WEST VIRGINIA ALLOYS, INC., a Delaware corporation, having its principal place of business in the State of West Virginia, and WVA MANUFACTURING LLC, a Delaware corporation, having its principal place of business in the State of West Virginia,

Defendants.

MEMORANDUM OPINION AND ORDER

Pending are the plaintiffs' motion for class certification, filed December 10, 2012, and the defendants' amended motion to exclude the opinions tendered by the plaintiffs' expert witnesses Greg Haunschild, James Dahlgren, and Randy Horsak, filed February 15, 2013.

I.

The plaintiffs propose certification of a medical monitoring class action for more than 30 diseases that involves seven defendants, potentially responsible for releasing 17 substances, nearly all of which are naturally occurring, into the ambient air of multiple communities rather than a direct water-line route, with two class definitions having a decades-long retrospective period.

The parties vigorously dispute both the expert proof relied upon by the plaintiffs to support the proposed classes and the discharge by plaintiffs of their certification burden under Federal Rule of Civil Procedure 23. The court thus undertakes the "rigorous" analysis required under Supreme Court precedent, see Wal-Mart Stores, Inc. v. Dukes, 131 S. Ct. 2541,

2551 (2011), nevertheless mindful of our court of appeals' admonition that Rule 23 should be accorded a liberal construction "which will in the particular case 'best serve the ends of justice for the affected parties and . . . promote judicial efficiency.'" Gunnells v. Healthplan Services, Inc., 348 F.3d 417, 424 (4th Cir. 2003) (quoting In re A.H. Robins, 880 F.2d 709, 740 (4th Cir. 1989)).

II.

A. Alloy Plant Ownership from 1934 to Present

In March 1934, the Alloy Plant at issue in this action commenced operations. It is a heavy-metals production facility that occupies a 120-acre site in Alloy, West Virginia. It was built by Electro Metallurgical Company, once a subsidiary of the company later known as Union Carbide Corporation ("UCC"). In 1948, UCC assumed the ownership and operations of the Alloy Plant. In June 1981, UCC sold the Alloy Plant to Elkem Metals Company, also known as Elkem Metals Company -- Alloy L.P. (collectively "Elkem").

Elkem owned and operated the Alloy Plant until it was purchased in December 2005 by West Virginia Alloys, Inc.

("WVAI"). Four years later, in November 2009, WVAI sold the fixed assets of the Alloy Plant to WVA Manufacturing, LLC ("WVAM"). WVAM is the current owner and operator of the Alloy Plant. WVAI and WVAM will collectively be referred to as "Globe" based upon their affiliation with defendants Globe Specialty Metals, Inc., and Globe Metallurgical, Inc. Neither Globe Specialty Metals, Inc., Globe Metallurgical, Inc., nor defendant The Dow Chemical Company, however, have ever owned the Alloy Plant.

B. The Changing Physical History of the Alloy Plant

Much like a changing city-scape, the Alloy Plant has consisted of different structures over time, with metamorphosing furnaces and components coming online and then later suffering decommission. The Alloy Plant is presently composed of bag houses[1], boiler houses with stacks, electric arc furnaces, mix houses, settling ponds, and waste ponds among many other components. A "List of Buildings" associated with the Alloy

[1] A "bag house" is generally defined as "a building in which bag filters are used to remove particles from gases. The bag filters are made of cloth and are ordinarily about 30 feet long and intended to recover metal oxides and other solid particles suspended in a gas (as from smelting or other furnaces)." Philip L. Bruner & Patrick J. O'Connor, Jr., Bruner and O'Connor on Construction Law § 6:26 (Elec. ed. 2013).

Plant, which includes other physical items like bridges, contains dozens and dozens of items constructed from 1930 to 1978. The number of furnaces used, and now falling into disuse over time, is particularly significant from an emissions perspective. The defendants observe as follows:

> UCC operated at least 23 separate furnaces in the 1960s and 1970s. . . . By contrast, Elkem regularly operated only 7 furnaces in the early 1980s and only four in the mid-1990s. . . . WVAM produced material using only 5 furnaces in 2010 and 2011.

(Defs.' Class Cert. Resp. at 6).

Additionally, during the UCC era, four coal-fired steam boilers generated electricity for the Alloy Plant's furnaces by burning steam-grade coal. These boilers, however, began falling into disuse in 1981. No boilers are now in operation at the Alloy Plant. It appears undisputed that the physical components and operations at the Alloy Plant have a long and complex 80-year history.

C. The Changing Products at the Alloy Plant

During its decades of production, the Alloy Plant has not pursued a static manufacturing regimen. As might be expected with multiple owners over many years, the Alloy Plant has produced a host of metal alloys, only some of which appear

to have resulted in emission of the substances identified by the plaintiffs. One better appreciates this fact when the production process is summarized and the litany of alloys is considered.

At its most basic level, the Alloy Plant's components (1) accomplish the mixing of raw materials and reducing agents, (2) place the product in a furnace, and (3) produce the finished alloy. UCC produced over 400 different compounds during its lengthy ownership period, including calcium alloys, chromium alloys, manganese alloys, strontium alloys, vanadium alloys, and zirconium alloys. Manufacturing choices eventually changed over time to compensate for customer demand. According to the defendants, "the products manufactured in the [Alloy] Plant's furnaces changed on a yearly -- and sometimes even monthly -- basis." (Defs.' Class Cert. Resp. at 5).

When the Alloy Plant was sold to Elkem in 1981, the new owner confined its efforts essentially to silicon alloys and some other specialty products. By 1993, production at the Alloy Plant was focused mostly on silicon metal and ferrosilicon. Since 2005, WVAI and then WVAM have produced only silicon metal and related products.

D. The Changing Emissions at the Alloy Plant

It appears minimal or no emission mitigation measures were undertaken at the Alloy Plant for nearly a third of its existence. The plaintiffs note the public outcry concerning its operations:

> **In 1970, before any emissions controls existed at the Alloy Facilities, Union Carbide submitted an Abatement Plan to the West Virginia Air Pollution Patrol Commission. In that plan, Union Carbide identified seventeen (17) compounds that it was then emitting into the environment. Union Carbide also estimated the emission potential of the Alloy Facilities to be approximately 100,000 net tons per year. This is a number that is simply staggering.**
>
> **After 1970, emission controls began to be implemented at the Alloy Facilities. However, the data on emissions from the Alloy Facilities continued to paint a grim picture. According to the US EPA Toxic Release Inventory, in 2002, the Alloy Facilities were listed as in the 80 to 90 percentile of the "dirtiest/worst" facilities in the United States, and the non-cancer score for air and water releases from the Alloy Facilities was listed in the 60 to 70 percentile.**
>
> **Not surprisingly, the Alloy Facilities have been the subject of numerous public complaints and regulatory violations. During the time period of 1973 through 2004 alone, there were 158 complaints filed against the Alloy Facilities, and the Alloy Facilities were cited for 57 violations of air regulations. As recently as July 20, 2012, the Alloy Facilities were not in compliance with West Virginia state SIP [meaning State Implementation Plans] and PSD requirements.**

(Pls.' Memo. in Supp. of Class Cert. at 4 (citations omitted)).

At some point between 1960 to 1970, however, UCC began to change incrementally its emission practices. UCC at that time began installing environmental controls on its furnaces and boilers. For a decade, in two phases, that effort continued. Phase One consisted of electrostatic precipitators on the four coal-fired boilers.[2]

The defendants assert that the measure removed approximately 99.4% of the fly ash resulting from coal burning. Phase Two involved the installation of bag houses on the furnaces. The bags are alleged to have collected 99% of the metallic particles that would otherwise have been emitted by the furnaces.

A 1974 news article notes the observations of then West Virginia Air Pollution Control Commission Director Carl Beard, who "confirmed that the Alloy [P]lant -- long a source of irritation to Upper Kanawha Valley residents and motorists passing by on U.S. 60 -- is on schedule in complying with APCC standards. . . . 'They've made a tremendous reduction in big

[2] An "electrostatic precipitator" is "[a] device that removes a gas stream after combustion by applying an electrical charge to particles that causes them to adhere to metal plates inside the device." David R. Wooley & Elizabeth M. Morss, Clean Air Act Handbook App'x C (2013).

source emissions,' said Beard." P.P. Huffard, Jr., "Alloy Smoke Reduction 'Tremendous,'" The Charleston Gazette (1974).

UCC's efforts were likely driven by the 1970 amendments to the Clean Air Act and the establishment of the Environmental Protection Agency ("EPA"). Following those developments, air pollution control became a priority for state regulators. In 1990, the Clean Air Act was substantially amended again. For apparently the first time over 100 particular substances were identified as hazardous air pollutants with emission limits attached. While emission control measures necessarily increased at the Alloy Plant, it appears to have remained a significant polluter.

E. The Changing Emitters in the Area

The Alloy Plant is located on Route 60 adjacent to the Kanawha River. It is found in a forested area of mountains, ridges, and other complex terrain features. It appears undisputed that there were other air pollution sources in the vicinity of the Alloy Plant over the years. The one in closest proximity was a coal mining facility in Boomer, West Virginia, and within the proposed class area, namely, Appalachian Fuels, LLC ("Appalachian Fuels"). As discussed more fully infra, the

plaintiffs actually attempted at an earlier point in this action to join Appalachian Fuels as a party.

F. The Named Plaintiffs and Their Allegations

On March 31, 2011, this putative class action was instituted in the Circuit Court of Kanawha County with 33 named plaintiffs. On December 27, 2012, the third amended class action complaint was filed, with the ranks dwindling to just 10 named plaintiffs. The principal allegation found therein is as follows:

> Due to their exposure to the Contaminants [emitted by the Alloy Plant], thousands of people who currently reside in, work in or attend school in the Contamination Area (or who formerly resided in, worked in or attended school in the Contamination Area) are now at a significantly increased risk of developing a serious illness or disease. These innocent victims of Defendants' wrongdoing seek an equitable and injunctive remedy in the form of a comprehensive, court-supervised program of medical monitoring -- a remedy that is recognized under applicable West Virginia law.

(Third Am. Compl. ¶ 2).

The plaintiffs propose two classes for certification under Rule 23 as follows:

> 43) Medical Monitoring Class I ("Class I"), which is defined to include: "All persons who: (1) resided in, were employed by a business in, or attended a school in the CONTAMINATION AREA for a continuous period of

> at least one year in the case of a person age 16 or older, six months in the case of a person between the ages of 5 and 15, and one month in the case of a child under the age of 5, at any time between March 31, 2009 and the date of class certification in this action; and (2) have not been diagnosed with an illness or disease that may be attributed to exposure to the chemicals, contaminants or hazardous substances released from the Alloy Facilities."
>
> 44) Medical Monitoring Class II ("Class II"), which is defined to include: "All persons who: (1) resided in, were employed by a business in, or attended a school in the CONTAMINATION AREA for a continuous period of at least one year in the case of a person age 16 or older, six months in the case of a person between the ages of 5 and 15, and one month in the case of a child under the age of 5, at any time prior to March 31, 2009; and (2) have not been diagnosed with an illness or disease that may be attributed to exposure to the chemicals, contaminants or hazardous substances released from the Alloy Facilities."

(Third. Am. Compl. ¶¶ 43-44). Plaintiffs Adelle Newbell and Carolyn Turner are proposed as the representatives of Medical Monitoring Class I. Plaintiff Terry White is proposed as the representative of Medical Monitoring Class II.

Respecting numerosity, the plaintiffs contend that census figures for the communities covered by the contamination area reflect that approximately 8500 people reside therein. Respecting commonality, the plaintiffs identify the following putative questions of law and fact:

> 49) There are questions of law or fact that are common to the members of each of the Classes, including: (1) whether Defendants discharged the Contaminants into the environment surrounding the Alloy Facilities; (2)

> the amounts of the Contaminants that were discharged into the Contamination Area; (3) whether the Class members were exposed to unsafe levels of the various chemicals, metals and other substances that were discharged into the Contamination Area; (4) whether the Class members have experienced a significantly increased risk of developing certain serious illnesses or diseases as a result of their exposure to the Contaminants discharged into the Contamination Area; and (5) the design and parameters of an appropriate program of medical monitoring to secure the early detection of such serious illnesses and diseases in the Class members.
>
> 50) The claims of the class members as well as the class representatives arise from the same set of conditions created by the Defendants from 1934 to present at the Alloy Facilities. The mechanism of exposure and contamination is common to all persons in the Contamination Area. Further, questions concerning the extent of discharge from the Alloy Facilities, Defendants' culpability, and the potential effect of the contaminants are common to all potential members of the Classes.

(Id. ¶¶ 49-50).

Certification is sought under Rule 23(b)(2) on the allegation that the defendants "have acted or refused to act on grounds that are generally applicable to the members of the Classes, thereby making appropriate final injunctive relief in the form of a comprehensive, court-supervised program of medical monitoring." (Id. ¶ 54). The third amended complaint alleges claims for (1) strict liability (Count One), and (2) medical monitoring (Count Two). They seek certification only on Count Two.

In addition to the establishment of a comprehensive, court-supervised program of medical monitoring for the benefit of all class members, plaintiffs also seek a permanent injunction prohibiting defendants from further contaminant releases in excess of permitted limits.

G. The Plaintiffs' Experts

While the Daubert analysis infra focuses upon the expert opinions offered by plaintiff experts Gregory Haunschild and Randy Horsak, a thumbnail sketch of the entirety of the plaintiffs' expert corps will provide helpful context and an overview of the scientific evidence in the case.

1. Dr. Nicholas Cheremisinoff

Dr. Nicholas Cheremisinoff was retained by the plaintiffs to reconstruct the manufacturing and emission practices at the Alloy Plant and assess the extent to which the defendants followed the law and industry standards and guidelines. Among Dr. Cheremisinoff's many qualifications are that (1) he has attained a Ph.D. in chemical engineering, (2) he worked with Exxon Research and Engineering Co., dealing with international assignments on

mining, refining, and chemical plant operations involving plant design, expansions, pollution management and worker safety, (3) between 1994 and 2008, he ran an overseas assignment for the United States Agency of International Development in Ukraine, managing a group of 20 engineers to improve environmental performance, (4) from 2000 to present, he has worked on numerous environmental management projects both in the United States and overseas, (5) he has been proffered and accepted as a standard of care expert in both state and federal courts, (6) he has personally trained or supervised the training of several thousand industry personnel and environmental regulators on pollution prevention and management practices, and (7) he was the editor-in-chief of two scientific journals and has authored, co-authored, or edited more than 150 engineering textbooks on chemical engineering practices, pollution control and management, and pollution prevention.

Dr. Cheremisinoff has devoted many years to working with the public, environmental regulators and industry stakeholders on sound environmental practices aimed at protecting workers, properties, and communities from industrial pollution. While the plaintiffs do not rely upon Dr. Cheremisinoff's opinions at the class certification stage, Dr. Dahlgren, Mr. Haunschild, and Mr. Horsak apparently rely to some extent upon Dr. Cheremisinoff's work.

Dr. Cheremisinoff has offered a host of opinions.

They include the following:

1. **The Alloy Plant significantly under reports its emissions;**

2. **Many of the stack emissions are from short stacks resulting in poor dispersion and high ground level concentrations;**

3. **Particulate and pollution releases both exceed those from some of the largest fossil burning power plants in the nation by many times but those plants have 1,000 foot tall stacks as opposed to the Alloy Plant's 200 foot short stacks;**

4. **A 2010 emissions inventory shows that between 4.5 to 6 pounds of dioxins are released, indicating that the Alloy Plant is among the largest, if not the largest, dioxin emitter in the United States;**

5. **Historically the facility was the worst polluting ferroalloy manufacturing plant in the country;**

6. **Until the Alloy Plant drew the attention of the EPA it was releasing more than 100,000 tons of particulate matter per year containing toxic heavy metals;**

7. **Assuming production levels in the 1970s were comparable to 2010, the mass releases of hazardous air pollutants would have been 78 times greater in the 1970s; and**

8. **The majority of the particulate emissions from the Alloy Plant are of the fugitive variety. Not all of the sources of fugitive emissions have been accounted for by the Alloy Plant, meaning that its impact on the surrounding community is likely far greater than implied from its calculated discharges.**

Dr. Cheremisinoff asserts that the Alloy Plant's emissions records reveal a long-term pattern of mechanical failures, malfunctions and breakdowns expected of aging and deteriorating equipment. One observation found in Dr. Cheremisinoff's report is particularly significant:

> In [sic] September 2, 1970, Union Carbide submitted an Abatement Plan to the West Virginia Air Pollution Control Commission. This plan acknowledged that the facility was discharging 100,000 net tons per year of PM [meaning total particulate matter]. The plan called for a reduction program to a discharge level of about 1,240 net tons per year by 1976. This is the level of PM discharges reported in the defendant's 2010 emissions inventory (Annex B). This means that the plant is just as polluting today as it was in the mid-1970s.

(Exp. Rep. of Dr. N. Cheremisinoff at 19).[3]

2. Randy Horsak

Mr. Horsak was retained to aid in diagraming the class-affected area or "radius of impact" from the Alloy Plant through soil and residential testing. He is a professional engineer with 40 years of experience. He asserts that the methods he used in arriving at his opinions comport with good

[3] "PM" is an abbreviation standing for total particulate matter. PM describes a host of airborne pollutants with different sizes and compositions, some of which, if small enough, are capable of entering the the human respiratory system.

engineering practice, the practice of Registered Professional Engineers, EPA guidelines and requirements, and methods used by other engineers and scientists in the field.

Mr. Horsak has managed environmental projects in a number of areas, including air emissions, air emissions testing, ambient air quality testing, regulatory compliance audits, regulatory liaison and permitting, environmental impact analyses, engineering evaluations and feasibility studies, pollution prevention studies, multi-media sampling and analysis, environmental fate and transport, forensic analysis, and chemical fingerprinting.

He has authored nearly 50 professional publications and lectures. Additionally, he has testified as an expert in multiple state and federal courts without suffering disqualification. Mr. Horsak is a principal with 3TM Consulting ("3TM"), an environmental consulting firm in Houston, Texas, specializing in environmental science, engineering, and forensic investigations. Mr. Horsak has authored multiple reports for the plaintiffs, including, (1) an October 6, 2005, Evaluation of the Technical Merits of the Case: Elkem Metals Co. Alloy L.P., Alloy, West Virginia (the "2005 Report"), (2) a March 2006 Field Sampling and Analytical Testing Summary Report for Alloy, West

Virginia and Surrounding Areas ("2006 Report"), (3) an August 24, 2012, Class Certification Report ("Class Certification Report"), and (4) a January 11, 2013 amended expert report ("2013 Class Certification Report"). He has previously filed affidavits in the case on December 10, 2012 (Horsak Dec. Aff.), February 6, 2013 (Horsak Feb. Aff.), and March 12, 2013 (Horsak Mar. Aff.). Mr. Horsak was deposed in the case on September 21, 2012 ("Horsak 2012 Dep."), and January 17, 2013 ("Horsak 2013 Dep.").

Mr. Horsak reports that a total of 25 household attic dust samples, one composite filter dust sample, and 52 surface soil samples were collected by 3TM during its 2006 testing in the vicinity of the Alloy Plant. The laboratory testing was performed on all household attic dust samples but on only two of the surface soil samples.

The court summarizes below some of the findings offered by Mr. Horsak, inter alia, based upon 3TM's investigation:

1. The Alloy Facility has emitted toxic pollutants into the atmosphere since its 1934 commissioning;

2. From 1934 to 1970, few environmental controls existed due to the lack of regulations;

3. The Alloy Plant historically has been a major air polluter over the years according to the EPA;

4. The Alloy Plant's radius of impact should extend at least 3 miles in all directions from its property boundary;

5. Approximately 8,000 residents are within the radius of impact and probably exposed to airborne emissions or other releases;

6. Many of the contaminants emitted by the Alloy Plant persist and accumulate without natural degradation, presenting risks for decades;

7. The 3TM sampling of surface soils and household attic dust in 2006 confirm pollutants are present at residences;

8. The residents in the area surrounding the Alloy Plant have been significantly exposed to toxic chemicals;

In arriving at these findings and conclusions, Mr. Horsak asserts that he relied upon historical air emission data in the public domain, air dispersion modeling studies archived with the West Virginia Division of Environmental Protection ("DEP") and performed by Mr. Haunschild, historical ground level and aerial photographs showing the nature of point and area sources, and the surface soil and household attic dust testing performed by 3TM in 2006.

Mr. Horsak additionally reported specifically about the attic dust and soil sampling, inter alia, as follows:

1. Significant concentrations of all "Contaminants of Concern" ("COC") were detected and measured.[4]

2. The samples were collected and tested for areas surrounding the Alloy Plant at multiple trajectories.

3. Regulatory screening levels were noted specifically for arsenic, total chromium, iron, manganese, lead, antimony, and vanadium for several of the locations of household attic dust testing.

4. The attic dust samples indicated that the finer particles found have higher contaminant concentrations.

5. Finer particulate matter typically represents a higher potential for resultant health effects.

6. The metals detected and measured in both the surface soil and household attic dust are probably associated with airborne emissions from the Alloy Facility.

7. The PCBs and Dioxins/Furans that were detected and measured probably have industrial sources.

8. PCBs were burned at the Alloy Facility, which could be the cause of the PCBs and Dioxins/Furans detected.

9. Since the 2006 sampling program was limited, it is probable that the nature and extent of contamination around the Alloy Plant is greater than reported.

10. The sampling locations represent distances of approximately 0.25 to 3.0 miles from the center

[4] COCs include the following substances: Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Dioxins/Furans, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, polychlorinated biphenyls ("PCBs"), Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc.

> portion of the Alloy Plant. Impacts probably extend substantially further.

In his December 10, 2012, affidavit, Mr. Horsak elaborated further upon the results of the household attic dust samples as follows:

> 100% of the samples contained the Contaminants of Concern.
>
> 100% of the samples had at least one Contaminant of Concern that was above the average background level, meaning contaminant levels that are naturally occurring.
>
> 100% of the samples had at least one Contaminant of Concern that was above regulatory Soil Screening Levels.[5]

---

[5] The concept of regulatory screening levels is important in assessing Mr. Horsak's opinions. Dr. Robert C. James, the defendants' counter-expert to Mr. Horsak, states as follows:

> Regulatory chemical exposure guidelines are designed to be ultra-conservative and to overstate the potential risk in ways that leads to numbers an order of magnitude lower than the safe range of potential exposure concentrations. They are not bright lines between safe and harmful levels of the chemical such that small or even moderate exceedances of the exposure guideline will be likely to induce harm; they are guidelines whose related doses fall well within the safe exposure dose region. The regulatory "soil screening levels" upon which Mr. Horsak relies are derived to provide a very conservative and safe potential dose for residential soils. Their sole purpose is to allow potentially responsible parties ("PRPs") involved in the cleanup of some chemical release to decide if they want to voluntarily agree to meet these levels, in which case the state or federal environmental agency agrees that the site cleanup completed by the PRPs meets their approval.

> These levels were detected and measured at distances ranging up to 3 miles from the Alloy Plant.
>
> Three of the 25 [household attic dust] samples were randomly selected for the testing of Dioxins. Dioxins are among the most toxic substances known to mankind, even at extremely low concentrations (i.e., part per trillion range). Dioxins are a known human carcinogen. The detection of Dioxins in the 3 selected household attic dust samples is "statistically significant" for several reasons: [a] the levels detected and measured are significantly higher than "background" levels, [b] all 3 of the samples tested indicated high levels, and [c] the locations of the samples tested were from throughout the community, and not in a localized area.
>
> The concentrations of the Dioxin samples measured in the community surrounding the Alloy Plant should be viewed as "very high, a cause for concern."

(Id. ¶¶ 9(n) - 9(p) (footnote omitted)).

3. Mr. Greg Haunschild

a. Background and Experience

The plaintiffs additionally offer Mr. Haunschild. He has 24 years of experience in environmental law generally and a like tenure in air pollution and dispersion modeling. He is a licensed professional engineer and the Principal Consultant for

---

(Dr. James' Rep. at 21-22).

ACS Engineering Group in Texas. He provides regulatory guidance for over 100 businesses, including Fortune 100 corporations. He has implemented a comprehensive environmental management system (EMS) that includes extracurricular compliance items for seven chemical plants belonging to a Fortune 100 corporation, with sustained success in the seven years of managing the site compliance programs with the system.

b. Appearance and Work in the Case

Some background on Mr. Haunschild's appearance in the case is warranted. On December 30, 2011, at a time when Mr. Haunschild was not an expert in the case, the court entered an agreed scheduling order setting August 10, 2012, as the deadline for plaintiffs' expert witness disclosures. At that time, plaintiffs' air modeling expert was Steven E. Cole. The expert witness disclosure deadline was subsequently extended to August 24, 2012.

On October 5, 2012, the court further extended the date by which plaintiffs could comply with the expert disclosure deadline respecting Mr. Cole. The defendants promptly sought reconsideration of that extension, which the court denied on October 19, 2013. The defendants asserted in their motion to

reconsider that Mr. Cole "did not receive [from plaintiffs' counsel] any of the documents produced by Defendants until mid to late July, more than four months after Defendants began producing documents." (Defs.' Mot. to Reconsid. at 4 (emphasis in original)). That is significant inasmuch as the defense document production appears to have exceeded half a million pages at the time. (See Trans. of Oct. 5, 2012, teleconf. at 107 (page estimate provided by plaintiffs' counsel)).

Based upon plaintiffs' counsels' late transmission of that mountain of information to Mr. Cole, the plaintiffs necessarily struggled to comply with the schedule. The struggle culminated on October 19, 2013, when the plaintiffs abruptly requested to substitute Mr. Haunschild for Mr. Cole. Plaintiffs stated that, after being in the case for months, "Mr. Cole would not be able to meet the Court's deadlines." (Pls.' Exp. Mot. to Substit. at 1). They added, however, that Mr. Haunschild informed them on or about October 5, 2013, that he could digest the vast amount of data and prepare his report by October 19, 2013. The defendants understandably found this assertion remarkable. (See Defs.' Resp. to Exp. Mot. at 2 ("Even more puzzling is the question of how a new expert could prepare a substantive report in about ten days when their duly disclosed

and presumably . . . long-retained and long-working expert Mr. Cole could not do so over several months . . . .")).

On October 19, 2012, Mr. Haunschild timely produced his report ("Haunschild 2012 Report"). On November 20, 2012, Mr. Haunschild was deposed ("Haunschild 2012 Dep."). On December 10, 2012, defendants moved to exclude him from the case pursuant to Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993). That challenge resulted from the unusual nature of Mr. Haunschild's perhaps hastily prepared expert report, as noted by the defendants: "Mr. Haunschild used a single year of emissions data to create an 'active model' [at times referred to as Scenario A] for 2009 and a 'historic model' for 1934-1970 [at times referred to as Scenario B]."[6] (First Daub. Mot. at 4; see also Daub. Memo. in Supp. at 8 ("Mr. Haunschild breaks up his PM_{10}[7] models into two scenarios. Scenario A is titled in his Amended Report 'Recent Impact Area From 1989 to 1997.'

[6] According to Mr. Haunschild, "[t]he year 2009 was selected to begin the modeling project due to the active emission points and the available emissions data for that year." (Haunschild 2012 Rep. at 3). The 2009 date appears to have significance from a limitations perspective as well according to plaintiffs. The complaint was filed March 31, 2011, and, as plaintiffs note, "Two years is the statute of limitations for claims for medical monitoring under West Virginia law." (Pls.' Memo. in Supp. Class Cert. at 10)).

[7] PM_{10} is defined as fine particulate matter with a diameter of 10 micrometers or less.

Haunschild Aff., Ex. C at 4. Scenario B is titled in his Amended Report 'Historic Impact Area From 1945 to 1963.'")).[8] The defendants added the following concerns:

> Mr. Haunschild's models include sources that either did not exist or were not in operation during the time period he purports to model.
>
> Mr. Haunschild conceded that there were several errors in the emissions data he input into both his active and historic models, resulting in a significant over-calculation of emissions. In fact, Mr. Haunschild's active model resulted in emissions that were 23 times above the reported levels, and his historic model overstated emissions by at least 145 times. . . .
>
> . . . .
>
> Mr. Haunschild used a model (AERMOD) that is unsuitable for the type of complex terrain surrounding the Alloy Plant. Rather than AERMOD, the EPA recommends the CALPUFF model for the type of complex terrain surrounding the Plant. Mr. Haunschild noted that he had a prior version of CALPUFF available but would need to upgrade it in order to complete this project. Rather than seek the necessary upgrade, however, Mr. Haunschild employed an inadequate model for the particular terrain at issue in this case.

(Defs.' First Daub. Mot. at 5-6 (citations omitted)).

---

[8] The defendants' characterization is accurate. In his January 11, 2013, amended expert report ("Haunschild Am. Rep."), Mr. Haunschild entitles his two models as follows: "Scenario A -- Recent Impact Area from 1989 to 1997" and "Scenario B -- Historic Impact Area from 1945 to 1963." (Haunschild Am. Rep. at 4-5). He further treats them respectively as addressing the "active" and "historic" operations at the Alloy Plant. (Id.) As noted infra, however, the referenced time periods were later qualified by Mr. Haunschild during his deposition to the point that they have become essentially meaningless.

On November 20, 2012, Mr. Haunschild was deposed ("Haunschild 2012 Dep."). Six days later, the defendants served the report of the counter-expert they designated to meet Mr. Haunschild's opinions, Ranjit Machado. On December 10, 2012, plaintiffs moved for class certification, filing therewith substantial supporting affidavits from all of their experts except Dr. Cheremisinoff.

On December 18, 2012, the defendants moved to strike, inter alia, the December 10, 2012, expert affidavit of Mr. Haunschild ("Haunschild Dec. Aff."). They stated as follows:

> "I am offering no new Opinions." Affidavit of Greg Haunschild, PE in Support of Motion for Class Certification ("Haunschild Affidavit"), 1 at ¶ 2. Plaintiffs' "air modeling expert," Mr. Greg Haunschild provided this sworn testimony, under penalty of perjury, in paragraph 2 of an affidavit that Plaintiffs included in their Motion for Class Certification on December 10. It is a lie. In fact, Mr. Haunschild does not just offer new opinions -- he offers an entirely new expert report nearly two months after the Court-ordered deadline, well after the close of expert discovery, and with the January 18, 2013 class certification hearing just five weeks away . . . .
>
> . . . .
>
> The Haunschild Affidavit includes two new models of PM_{10} emissions using a different, but unidentified, methodology with different inputs that results in dramatically different outputs. No longer is the class-affected area three miles west and downstream from the Plant. Now, according to Mr. Haunschild, the class-affected area for what he terms the "recent" time period is 2.5 miles in every direction from the

> Plant (a perfect circle covering nearly 20 square miles). The new supposed class-affected area for the "historic" period is 7 to 9.8 miles in every direction from the Plant (a perfect circle covering a 300 square mile area). The Haunschild Affidavit does not identify the methodology he used to reach these dramatically different results. But that is not all. The Haunschild Affidavit purports to contain the result of an air dispersion model for dioxin, a substance Mr. Haunschild never even suggested before he would model.

(Defs.' Mem. of Law in Supp. of Mot. to Strike at 1, 3) (footnote omitted)). In the alternative to striking the affidavits, the defendants moved for additional time to have their experts serve amended responsive reports and permit redeposition of the plaintiffs' experts.

After concluding "that the subject affidavits expand[ed] considerably the scope of the issues presented on class certification without a concomitant showing of good cause or other substantial justification" the court ordered as follows with the parties' agreement:

> [The motion to strike is] denied, with the exception that the plaintiffs be, and they hereby are, ORDERED to pay over to the defendants the attorney fees and costs reasonably and necessarily attributable to the defendants' taking the additional discovery necessitated by the plaintiffs' failure to include the now-expanded scope of the issues in the original reports of the three challenged experts.

(Ord. at 3).

The court once again significantly extended the case-related deadlines. On January 11, 2013, Mr. Haunschild submitted his amended expert report, which, in turn, caused Mr. Machado to submit an amended responsive expert report ("Machado Am. Rep."). Mr. Haunschild's December 2012 affidavit and amended expert report also necessitated a new deposition, which occurred on January 18 and January 29, 2013 ("Haunschild 2013 Dep."). He filed additional affidavits on February 6 ("Haunschild Feb. Aff.") and March 12, 2013 ("Haunschild Mar. Aff.").

c. Opinions

Mr. Haunschild avers that the methods he used "are fully consistent with good engineering practices, the practices of Registered Professional Engineers, . . . [EPA] guidelines and requirements for air pollution permitting and air dispersion modeling, and methods used by other professionals in the field of air pollution science and engineering." (Haunschild Dec. Aff. ¶ 5). He also notes that his data source for emissions that served as inputs for his air dispersion modeling came from either (1) the defendants, or (2) publicly available regulatory records from the DEP. His meteorological data for the inputs

came from the National Climactic Data Center and is commonly used for dispersion modeling.

Mr. Haunschild was charged with identifying the probable radius of impact resulting from the Alloy Plant over time. That, of course, is the key piece of evidence in a case such as this where significant exposure to toxins is central to the plaintiffs' claims. Mr. Haunschild admits that he has never applied any methodology in any other litigation in an effort to opine about past emission concentrations.

Mr. Haunschild asserted shortly after his appearance in the case that his air dispersion models confirmed the widespread community impact: "[W]hen compared to the attic dust sampling results indicated in the report prepared by 3TM, the results of the modeling are consistent with the Chemicals of Concern and the radius of . . . [impact] indicated by 3TM, except that my modeling shows a more extensive impact." (Haunschild Dec. Aff. ¶¶ 11, 12).

As noted, Mr. Haunschild's report assesses both active, or Scenario A, modeling and historical, or Scenario B, air modeling. The active model is based upon meteorological data from the year 2009. He asserts that the active air modeling produced emissions of a subset of PM known as PM_{10},

which Mr. Haunschild asserts is above 50 micrograms per cubic meter of air ("50 µg/m^3") beyond three miles to the west and downstream from the facility. The 50 µg/m^3 measure is an annual threshold found in the National Ambient Air Quality Standard ("NAAQS") once used, but since withdrawn, by the EPA.

Mr. Haunschild focuses his opinions on PM emissions but, as noted, is unclear at points whether he refers to PM in a general way or, more particularly, to PM_{10}. As an example, here follows a quote from his January 2013, amended expert report:

> Following standard modeling procedures, PM was selected as the indicator with the assumption that if the communities were experiencing excessive impacts of PM, which is known to be harmful pollutant established by the EPA, it is reasonable to assume that these same communities are also experiencing excessive impacts of toxic contaminants, which are carried in the particulate matter plume.

(Haunschild Am. Rep. at 6). He further states as follows:

> Plumes are comprised of . . . PM . . . which has become airborne due to the discharge force. . . . [I]t will precipitate from the plume as the plume travels away from the source. Very little PM is dispersed above the mountains due to . . . [in]adequate lift . . . or from the wind. The scale of the operations and the design of the emission sources at the Alloy Plant produce a variety of plumes capable of traversing variable distances. . . . Historical photographs show the dispersion of the plumes to be consistent throughout the facility's existence. A recent site visit by ACS Engineering group indicates these plumes are an ongoing occurrence. Additionally, material

> handling areas tend to have emissions that disperse at a height closer to the point of origin.

(Id. at 4).

The active, or Scenario A, air model encompasses the communities of Boomer/Alloy, Kimberly, Mount Carbon/Montgomery Heights, Deep Water, and Falls View. The historical, or Scenario B, air model includes those communities and, additionally, Charlton Heights, Smithers, Montgomery, and Powellton. Mr. Haunschild concluded as follows in his October 19, 2012, report:

> Using the [now withdrawn] NAAQS . . . annual threshold of 50 µg/m^3 for PM_{10} as the standard, all modeling results were analyzed to find receptors that display results above the threshold. All results above the threshold have been defined as "significant" due to the chronic health effects of long term exposure.
>
> The air modeling results show that the impact from the PM emissions is significant extending beyond seven miles downstream from the facility. This impact also extends to lower terrain communities to the southwest within a three mile range and to the southeast within a two mile range. It should be noted that the NAAQS standard may not be adequately protective for all contaminants and that the defined threshold of 50 µg/m^3 for this report in no way implies there was no impact upon persons or communities outside the represented plume area.
>
> The input for the historical modeling results was selected to indicate that even with an assumption that currently reported emissions and operating rates were historically significantly lower, the impact area and concentration has been significant. Additionally, it is the opinion of ACS Engineering Group, based on an observation of the site and a review of reports

> prepared by the Elkem Facility, that actual emissions are and have been significantly greater than what has been reported.

(Haunschild 2012 Rep. at 6). He adds as follows:

> This modeling study has confirmed the results of the Class Certification Report prepared by 3TM Consulting and aligns well with the conclusions presented in the Emissions Analysis of Elkem Ferroalloy Plant prepared by Nicholas P. Cheremisinoff.

(Id. at 5).

The January 2013 amended expert report also provides further detail respecting Mr. Haunschild's methodology:

> • The analysis of historic emissions from the Alloy Plant included an assessment of all emission points that existed on the site plan dated 1954.
>
> • Union Carbide's reported emissions from the Alloy Plant in 1970 were approximately 83,000 tons per year. This emission rate was used as a reference point to validate the historic emission rates that served as the basis for the modeling. . . .
>
> • The Title V permit application and emissions inventories prepared and submitted by the Alloy facility were used as data sources for maximum emission rates, both controlled and uncontrolled.[9]

---

[9] The Title V Clean Air Act permitting process was recently summarized by one court as follows:

> [P]lant operators must submit a compliance plan and a Title V permit application to regulators, who shall after review issue or deny the Title V operating permit. Each Title V permit is required to include all emission limitations and standards, and "such other conditions" necessary to assure a plant's compliance with the Clean Air Act.

> • The Title V permit application prepared and submitted by the Alloy facility indicates the annual dioxin emission rate for 5 furnaces. These emission rates were assumed to be representative of current and historic operations.
>
> • Particulate matter consists of numerous contaminants that are known to be emitted from the Alloy facility. Excessive impacts of PM are known to create adverse health impacts and are indicative that other toxic contaminants which exist in the PM plumes are also impacting the neighboring communities at excessive and harmful levels.

(Haunschild Am. Rep. at 3).

The January 2013 amended expert report adds that "Historical photographs show the dispersion of the plumes to be consistent throughout the facility's existence." (Id. at 4). He additionally opines as follows:

> Regarding PM emissions, the recent air model results show substantial air quality impacts inside an area covering approximately 2.5 miles in a northerly direction and approximately one mile in a southerly direction from the facility. The historic air quality modeling shows significant impacts beyond the Alloy Plant boundaries for more than 9 miles as indicated on the modeling diagrams in Exhibit A. The historic air dispersion modeling focused on represented emission sources and these modeled emission rates were less than the reported emissions of 83,000 tons per year referenced above, therefore it is reasonable to conclude that the actual impacts on the surrounding communities were even greater than the impacts represented in this report.

(Id. at 4).

United States v. EME Homer City Generation L.P., 823 F. Supp.2d 274, 282 (W.D. Pa. 2011) (citations omitted).

The January 2013 amended expert report also, as noted, includes the active and historical impact areas for PM_{10} by community:

Scenario A - Recent Impact Area from 1989 to 1997

After creating an air model representative of active plant operations and emissions, the NAAQS threshold for PM_{10} was used to identify communities that are significantly impacted by the facility's emissions. Refer to Exhibit A for an aerial diagram of the air model results and representative data for emission source calculations. The initial annual PM_{10} analysis and the 24-hour analysis both result in impacts beyond the respective thresholds of 50 µg/m^3 and 150 µg/m^3, respectively. The communities currently impacted at levels greater than 150 µg/m^3 with the current emission controls in place are as follows:

- **Boomer**
- **Alloy**
- **Mount Carbon**
- **Montgomery Heights**

The communities currently impacted at levels greater than 50 µg/m^3 with the current emission controls in place are as follows:

- **Falls View**

Scenario B - Historic Impact Area From 1945 to 1963

After creating an air model representative of historic plant operations and emissions, the current NAAQS threshold of 150 µg/m^3 for PM_{10} was used to identify communities that are significantly impacted by the facility's emissions. Refer to Exhibit A for an aerial diagram of the air model results and representative data for emission source calculations. The impacted communities for the historic study are as follows:

- **Boomer/Alloy**

- **Charlton Heights**
- **Deep Water**
- **Mount Carbon/Montgomery Heights**
- **Falls View**
- **Smithers**
- **Montgomery**

(Id. at 4-5).

4. Dr. James Dahlgren

Plaintiffs offer James Dahlgren, M.D., as an expert in toxicology and medical monitoring. He is a medical doctor specializing in internal medicine. He has a sub-specialty in occupational and environmental medicine with a further sub-specialty in toxicology, with nearly forty years' experience in the field. He concentrates on occupational and environmental medicine. His practice includes toxicology, medical surveillance, bio-monitoring, disability evaluation, and risk communication.

In 1986, he founded the Pacific Toxicology Laboratory, a company specializing in measuring human exposure to toxic chemicals. From 1995 to 2006, he served as Medical Director at Industrial Health, Inc., in Palo Alto, California. From 1997 to 2006, he served as Medical Director at MedRight in Santa Monica, California. In both of these positions he managed risk from

occupational and environmental exposures as well as assisting injured workers to return to work more quickly.

Dr. Dahlgren has held several academic positions, including Lecturer at the UCLA School of Public Health, Assistant Professor of Medicine at UCLA from 1975-77 and as a Clinical Assistant Professor of Medicine at the UCLA School of Medicine from 1977 to the present. He also served as a Teaching Fellow in Medicine at Tufts University from 1968-70.

Dr. Dahlgren has edited a book and written articles, presentations, and abstracts on occupational and environmental medicine. He has enjoyed membership in several professional organizations, including the American College of Occupational and Environmental Medicine, the Society for Occupational and Environmental Health, Medichem, an International Organization of Professionals for Occupational Health in the Chemical Industry, Western Occupational and Environmental Medicine Association and others. He is also the founder and past president of the California Society of Industrial Medicine and Surgery. He summarizes his experience as follows:

> I have spent 40 years as of 2011 studying, teaching and publishing on the subject of medical toxicology. I have over 45,000 articles in my database covering a portion of the medical and scientific literature on the subject of occupational and environmental toxicology. I continue to study and publish findings

> in the field each day. I am learning new information each day and expect to continue in this task indefinitely.

(Dr. Dahlgren Exp. Rep., Appx. A at 1-2).

Dr. Dahlgren has submitted multiple affidavits, filed respectively on December 10, 2012, an amended version filed December 13, 2012 ("Dr. Dahlgren Dec. Aff."), February 6, 2013 ("Dr. Dahlgren Feb. Aff."), and March 12, 2013 ("Dr. Dahlgren Mar. Aff."). He was deposed on September 17, 2012, and January 16, 2013.

In his March 12, 2013, affidavit, Dr. Dahlgren describes the methodology for arriving at his opinions in this action. First, he notes the necessity of identifying the substances released from a site. In his December 13, 2012, affidavit, he identifies the COCs emitted from the Alloy Plant as including, inter alia, dioxins, formaldehyde, particulate matter (including ultrafine, $PM_{2.5}$ and PM_{10}) sulphur oxides, and heavy metals. He also identifies certain volatile organic compounds such as benzene, toluene, ethylbenzene, xylene, and ethylene dibromide. The heavy metals include, inter alia, arsenic, chromium, mercury, nickel, and lead. The danger posed is compared facially to other locations in West Virginia:

> The EPA has written a report about the need to reduce emissions from two other ferroalloy plants in West

> **Virginia. These two . . . plants are emitting the identical contaminants as Alloy. In that document the EPA notes that air emissions from those two plants are killing people and causing numerous health problems for the people living near those two facilities. EPA is providing this data to protect the public health. EPA also did a cost benefit analysis. By requiring these plants to spend about $11,000,000 there would be a [sic] about $100,000,000 savings in lost productivity and health care costs. EPA is planning to require that these two . . . [plants] install more effective pollution controls to save lives. This document is incontrovertible evidence that Alloy's air pollution from its stacks alone is creating adverse health effects in the neighbors. The EPA assessment is not addressing the fugitive emissions which in Alloy are obviously very high based on reports by local residents of odors and visible polluted air.**

(Dr. Dalhlren Dec. Aff. at 7).

Second, he examined the "amounts of chemicals that are reaching the neighbors," perhaps the most important part of his investigation inasmuch as the inquiry is central to the medical monitoring claim. (Dr. Dahlgren Mar. Aff. at 4). He has relied upon Mr. Horsak's and Mr. Haunschild's measurements and modeling to conclude that there have been "high exposures to the people living in the Alloy Plant neighborhood and surrounding three miles." (Id.)

Comparing the exposures with those in Sao Paolo, Brazil that were the subject of a 1992 scientific study, Dr. Dahlgren notes that "it is worse to live in the Alloy Plant neighborhood with that air pollution than to live in Sao Paulo,

one of the most polluted cities in the world." (Id. at 5). He states that "[i]n the period prior to the 1970's, the class members . . . . experienced pollutant levels higher than the rats in the Sao Paulo study" but, by comparison, states further that "[t]he class members here were and are still probably being exposed to levels higher than [those] living in Sao Paulo . . . ." (Id.)

Dr. Dahlgren and his fellow plaintiff experts focus on PM_{10} and dioxin, about which he opines, in part, as follows:

> [Noting Mr. Haunschild's view that there are] truly large amounts of pollution from the plant [according to Mr. Haunschild's] graphic of historical exposures that indicates the particulate (PM_{10}) is over 1500 $\mu g/m^3$ up to 7.1 miles from the plant. This concentration is 15 times the amount I noted in my report (i.e. 100 $\mu g/m^3$) that causes respiratory injury and death. The data shows PM_{10} over 150 $\mu g/m^3$ up to 9.8 miles away from the plant.
>
> The graphic of the amount of dioxin reaching into the neighborhood is historic. The amounts of dioxin in the model are higher than any other site of which I am aware. The total dose in Seveso[, Italy, which had a large release of dioxin that poisoned thousands and resulted in an increase in cancer, reproductive harm, diabetes, severe skin problems, neurological damage and other adverse health effects,] was far lower than the total dose here. . . . A 70 kg man would experience 29 ng/kg/day up to 529 ng/kg/day from inhaling air with these high dioxin levels. The EPA reference dose is 0.0007 nanograms/kg/day. That means a man living and breathing in this area is receiving 755,714 times the reference dose. . . . Children would

> experience an even larger dose compared to acceptable levels.

(Dr. Dahlgren Dec. Aff. at 2-3).

The third step in Dr. Dahlgren's methodology identified the people who are exposed by defining the area adversely affected. Dr. Dahlgren again relies upon Mr. Horsak and Mr. Haunschild to conclude that three or more miles from the Alloy Plant the contaminant levels are sufficiently elevated to cause a higher risk of serious latent illness. Dr. Dahlgren responds specifically to one of the criticisms of his work offered by the defendants:

> Defendants have suggested that a class cannot be defined unless each potential exposed subject is examined individually. I have stated that when we proceed with this case there may be people who have been injured by past exposures, and these people would have personal injury claims. These people would still need to be monitored for future latent diseases that have not yet manifested. This statement by me is wrongly interpreted by Defendants to suggest that each person needs to be examined to determine the need for medical monitoring. The medical monitoring is needed because of harmful exposure, which we can plainly see has occurred and is still occurring.

(Dr. Dahlgren Mar. Aff. at 8-9).

Having now received the entirety of the considerable body of evidence relating to the plaintiffs' class certification request and the defendants' Daubert challenge, and the parties specifically advising the court during a March 28, 2013,

telephonic hearing that neither a class certification nor a Daubert hearing was warranted, the matter is ripe for disposition.

III.

A. Governing Standards

1. Daubert Standard

Federal Rule of Evidence 702 provides that expert testimony is admissible if it will assist the jury and is (1) "based upon sufficient facts or data," (2) "the product of reliable principles and methods," and (3) "the principles and methods [have been applied] reliably to the facts of the case." Fed. R. Evid. 702; see United States v. McLean, 715 F.3d 129, 144 (4th Cir. 2013). Admissibility of such testimony is governed by a two-part test: the evidence is admitted if "it rests on a reliable foundation and is relevant." Daubert v. Merrell Dow Pharm., 509 U.S. 579, 597 (1993). Relevance and reliability is guided by, among other things:

> (1) whether the particular scientific theory "can be (and has been) tested"; (2) whether the theory "has been subjected to peer review and publication"; (3) the "known or potential rate of error"; (4) the

> "existence and maintenance of standards controlling the technique's operation"; and (5) whether the technique has achieved "general acceptance" in the relevant scientific or expert community.

United States v. Crisp, 324 F.3d 261, 266 (4th Cir. 2003) (quoting Daubert, 509 U.S. at 593–94)).

The court need not, however, consider all of the factors in lockstep fashion. Neither Rule 702 nor case law establish a mechanistic test for determining the reliability of an expert's proffered testimony. Rather, "'the test of reliability is flexible' and 'the law grants a district court the same broad latitude when it decides how to determine reliability as it enjoys in respect to its ultimate reliability determination.'" United States v. Wilson, 484 F.3d 267, 274 (4th Cir. 2007) (quoting Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141-42 (1999)).

The gatekeeping role exercised by the district court is a critical one. Inasmuch as "expert witnesses have the potential to be both powerful and quite misleading[,]" the court must "ensure that any and all scientific testimony . . . is not only relevant, but reliable." PBM Prods., LLC v. Mead Johnson & Co., 639 F.3d 111, 123 (4th Cir. 2011); Cooper v. Smith & Nephew, Inc., 259 F.3d 194, 199 (4th Cir. 2001) (citing Westberry v. Gislaved Gummi AB, 178 F.3d 257, 261 (4th Cir.

1999) and Daubert, 509 U.S. at 588, 595). As observed in Westberry, "The inquiry to be undertaken by the district court is 'a flexible one' focusing on the 'principles and methodology' employed by the expert, not on the conclusions reached." Westberry, 178 F.3d at 261 (quoting Daubert, 509 U.S. at 594-95).

The court is not obliged to "determine that the proffered expert testimony is irrefutable or certainly correct" -- "[a]s with all other admissible evidence, expert testimony is subject to testing by '[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof.'" United States v. Moreland, 437 F.3d 424, 431 (4th Cir. 2006) (quoting Daubert, 509 U.S. at 596) (alteration in original); see also Maryland Cas. Co. v. Therm-O-Disc., Inc., 137 F.3d 780, 783 (4th Cir. 1998) (noting that "[a]ll Daubert demands is that the trial judge make a 'preliminary assessment' of whether the proffered testimony is both reliable ... and helpful").

In assessing the helpfulness of the testimony, one must bear in mind the principal claim pled by the plaintiffs. Count Two of the third amended class action complaint alleges a medical monitoring cause of action. In syllabus point 4 of

Acord v. Colane Co., 228 W. Va. 291, 719 S.E.2d 761 (2011), the Supreme Court of Appeals of West Virginia stated as follows:

> "In order to sustain a claim for medical monitoring expenses under West Virginia law, the plaintiff must prove that (1) he or she has, relative to the general population, been significantly exposed; (2) to a proven hazardous substance; (3) through the tortious conduct of the defendant; (4) as a proximate result of the exposure, plaintiff has suffered an increased risk of contracting a serious latent disease; (5) the increased risk of disease makes it reasonably necessary for the plaintiff to undergo periodic diagnostic medical examinations different from what would be prescribed in the absence of the exposure; and (6) monitoring procedures exist that make the early detection of a disease possible."

Acord, 228 W. Va. at 295, 719 S.E.2d at 765 (emphasis added) (quoting syl. pt. 3, Bower v. Westinghouse Elec. Corp., 206 W.Va. 133, 522 S.E.2d 424 (1999)).

2. Class Action Standards

A party seeking class certification must satisfy the requirements found in Federal Rule of Civil Procedure 23(a) and also demonstrate satisfaction of at least one of the subdivisions found in Rule 23(b). Amchem Prods., Inc. v. Windsor, 521 U.S. 591, 614 (1997); Deiter v. Microsoft Corp., 436 F.3d 461, 466 (4th Cir. 2006). The material portions of Rule 23 provide as follows:

> **(a) Prerequisites. One or more members of a class may sue or be sued as representative parties on behalf of all members only if:**
>
> > **(1) the class is so numerous that joinder of all members is impracticable;**
> >
> > **(2) there are questions of law or fact common to the class;**
> >
> > **(3) the claims or defenses of the representative parties are typical of the claims or defenses of the class; and**
> >
> > **(4) the representative parties will fairly and adequately protect the interests of the class.**
>
> **(b) Types of Class Actions. A class action may be maintained if Rule 23(a) is satisfied and if:**
>
> > **. . . .**
> >
> > **(2) the party opposing the class has acted or refused to act on grounds that apply generally to the class, so that final injunctive relief or corresponding declaratory relief is appropriate respecting the class as a whole . . . .**

Fed. R. Civ. P. 23(a), (b)(2); see generally Thorn v. Jefferson-Pilot Life Ins. Co., 445 F.3d 311 (4th Cir. 2006). As noted by our court of appeals, "A plaintiff bears the burden of proving these requirements." Monroe v. City of Charlotesville, 579 F.3d 380, 384 (4th Cir. 2009).

The district court is entrusted with exhaustively examining the certification request, as set forth more fully infra, and, as a result, is given the concomitant latitude to do so:

> [A] district court's "wide discretion" in deciding whether to certify . . . class . . . . [is based on] a district court['s] . . . greater familiarity and expertise than a court of appeals in managing the practical problems of a class action . . . . [I]ts certification decision is entitled to "substantial deference," especially when the court makes "well-supported factual findings supporting its decision."

Ward v. Dixie Nat'l Life Ins. Co., 595 F.3d 164, 179 (4th Cir. 2010) (citations omitted).

The plaintiffs seek certification under Rule 23(b)(2). They have chosen a demanding course. The leading commentators observe that certification under Rule 23(b)(2) is more rigorous than its Rule 23(b)(3) (predominance) counterpart. See 7A Charles A. Wright, et al., Fed. Prac. & Proc., § 1784.1 (3d ed. 2005) ("[T]he common-question and superiority standards of Rule 23(b)(3) are in some ways much less demanding than that of either Rule 23(b)(1) or Rule 23(b)(2)...."); 1 Joseph M. McLaughlin, McLaughlin on Class Actions: Law and Practice § 5:15 (3d ed. 2006) ("[I]t is well established that a rule 23(b)(2) class should actually have more cohesiveness than a Rule 23(b)(3) class." (internal quotations omitted)).

As noted by our court of appeals, "'[T]he underlying premise of the [Rule 23(b)(2)] class [is] that its members suffer from a common injury properly addressed by class-wide relief . . . .'" Thorn, 445 F.3d at 330 (quoting Allison v. Citgo Petroleum Corp., 151 F.3d 402, 414-15 (5th Cir. 1998)). There are a variety of related considerations respecting aggregate litigation under 23(b)(2). Foremost are questions surrounding the cohesiveness and ascertainability of the proposed classes.

While many courts have discussed and applied the cohesiveness requirement in the Rule 23(b)(2) context, a thorough discussion of the matter is found in a recent case from this district as follows:

> The cohesiveness requirement originally arose in the 23(b)(3) context and stems from the Supreme Court's statement that "[t]he Rule 23(b)(3) predominance inquiry tests whether proposed classes are sufficiently cohesive to warrant adjudication by representation." Amchem Prods., Inc. v. Windsor, 521 U.S. 591, 623, 117 S.Ct. 2231, 138 L.Ed.2d 689 (1997); see also In re New Motor Vehicles Canadian Exp., No. MDL 1532, 2006 WL 623591, at *8 (D.Me. Mar.10, 2006). The [Third Circuit in the seminal] Barnes . . . [decision] required cohesiveness under 23(b)(2) because "in a (b)(2) action, unnamed members are bound by the action without the opportunity to opt out." Barnes, 161 F.3d at 142-43.
>
> The cohesiveness requirement is similar to but "more stringent" than the commonality requirement of Rule 23(a). See Lienhart v. Dryvit Syst., Inc., 255

F.3d 138, 147 n.4 (4th Cir.2001); Barnes, 161 F.3d at 142–43. In a traditional (b)(2) class, "when a class of individuals alleges a group harm, and seeks a broad, class-wide, injunctive remedy, there is an 'underlying premise' of cohesiveness that makes (b)(2) certification appropriate." In re New Motor Vehicles, 2006 WL 623591, at *9. Thus, when a 23(b)(2) class is cohesive,

> [a]ny resultant unfairness to the members of the class [as a result of being bound by the action] was thought to be outweighed by the purposes behind class actions: eliminating the possibility of repetitious litigation and providing small claimants with a means of obtaining redress for claims too small to justify individual litigation.

Barnes, 161 F.3d at 143 (quoting Wetzel v. Liberty Mut. Ins. Co., 508 F.2d 239, 248–49 (3d Cir.1975)).

If the injunctive remedy must be individualized, however, it would be "unjust to bind absent class members to a negative decision where the class representatives's claims present different individual issues than the claims of the absent members present." Id. (quoting Santiago v. City of Philadelphia, 72 F.R.D. 619, 628 (E.D.Pa.1976)). In addition, the presence of individual issues may result in an unmanageable case, negating the benefits of litigating as a class action. Id. This is particularly true in a certification request involving the tort of medical monitoring. "Proposed medical monitoring classes suffer from cohesion difficulties, and numerous courts across the country have denied certification of such classes." In re St. Jude Med., Inc., 425 F.3d 1116, 1122 (8th Cir.2005) (citing e.g., Ball v. Union Carbide Corp., 385 F.3d 713, 727–28 (6th Cir.2004)); Barnes, 161 F.3d at 143–46; Boughton v. Cotter Corp., 65 F.3d 823, 827 (10th Cir. 1995).

Rhodes v. E.I. du Pont de Nemours and Co., 253 F.R.D. 365, 371-72 (S.D. W. Va. 2008).

Additionally, one of the most widely cited federal class action commentators observes as follows:

> Courts addressing attempts to certify Rule 23(b)(2) medical monitoring classes have also analyzed whether "individual issues exist among class members that would destroy the 'cohesive nature' of the class claims," a requirement for certification of any (b)(2) class. A (b)(2) class must have more cohesiveness than a (b)(3) class because in a (b)(2) action, unnamed members are bound by the action without notice or the opportunity to opt out. "Thus, as the Third Circuit has explained, the court must ensure that significant individual issues do not pervade the entire action because it would be unjust to bind absent class members to a negative decision where the class representatives' claims present different individual issues than the claims of the absent members present.'" Moreover, a non-cohesive class may not be manageable. As the Eighth Circuit observed, "[p]roposed medical monitoring classes suffer from cohesion difficulties, and numerous courts across the country have denied certification of such classes."
>
> Ordinarily, the core question behind medical monitoring -- whether a patient required monitoring in addition to the care he or she normally would require and, if so, the nature of the additional monitoring -- depends on individual factors among class members.

1 Joseph M. McLaughlin, McLaughlin on Class Actions § 5:19 (9th ed. 2012) (footnotes omitted); see also 2 William B. Rubenstein & Alba Conte, Newberg on Class Actions § 4:45 (5th ed. 2002-2014) ("Eschewing monetary damages may make a medical monitoring class available for (b)(2) certification, but as discussed elsewhere in this chapter of the Treatise, medical monitoring classes face other hurdles, for example, whether a medical

monitoring class is sufficiently cohesive to warrant certification under Rule 23(b)(2).").

Respecting ascertainability, our court of appeals observed long ago that "[i]n order to determine whether a class action is proper, the district court must determine whether a class exists and if so what it includes. Although not specifically mentioned in the rule, the definition of the class is an essential prerequisite to maintaining a class action." Roman v. ESB, Inc., 550 F.2d 1343, 1348 (4th Cir. 1976). That settled principle of case law, in a nutshell, defines the concept of ascertainability. In 2003, the long-implicit concept of ascertainability was added to Rule 23(c)(1)(B), providing that "[a]n order that certifies a class action must define the class . . . ." Fed. R. Civ. P. 23(c)(1)(B).

Apart from these well-settled standards, it is important to note that "[t]he likelihood of the plaintiffs' success on the merits . . . is not relevant to the issue of whether certification is proper." See, e.g., Thorn, 445 F.3d at 319 (4th Cir. 2006). As a corollary, however, it is also observed as follows:

> [T]he district court must take a "close look" at the facts relevant to the certification question and, if necessary, make specific findings on the propriety of certification. Such findings can be necessary even if

> the issues tend to overlap into the merits of the underlying case.

Id. The court is thus not prohibited from addressing the defendants' Daubert challenge at the class certification stage. To the extent any doubt remained on that point following Thorn, it was laid to rest in Comcast Corp. v. Behrend, 133 S. Ct. 1426 (2013).

In Behrend, the Supreme Court addressed a class certification request that succeeded in the district court and the Third Circuit, essentially due to the unwillingness of the lower courts to heavily scrutinize a particular expert opinion inasmuch as it would require reaching the merits of the plaintiffs' claims at the class certification stage.

After noting the "rigorous analysis" required under Rule 23, the Supreme Court concluded that the class was improperly certified:

> [A] party must not only "be prepared to prove that there are in fact sufficiently numerous parties, common questions of law or fact," typicality of claims or defenses, and adequacy of representation, as required by Rule 23(a). . . . The party must also satisfy through evidentiary proof at least one of the provisions of Rule 23(b). . . .
>
> Repeatedly, we have emphasized that it "'may be necessary for the court to probe behind the pleadings before coming to rest on the certification question,' and that certification is proper only if 'the trial court is satisfied, after a rigorous analysis, that

> the prerequisites of Rule 23(a) have been satisfied.'" Such an analysis will frequently entail "overlap with the merits of the plaintiff's underlying claim." That is so because the "'class determination generally involves considerations that are enmeshed in the factual and legal issues comprising the plaintiff's cause of action.'"
>
> The same analytical principles govern Rule 23(b). . . .
>
> By refusing to entertain arguments against respondents' damages model that bore on the propriety of class certification, simply because those arguments would also be pertinent to the merits determination, the Court of Appeals ran afoul of our precedents requiring precisely that inquiry. And it is clear that, under the proper standard for evaluating certification, respondents' model falls far short of establishing that damages are capable of measurement on a classwide basis.

Behrend, 133 S. Ct. at 1432-33 (citations omitted). The Supreme Court elaborated further on the error below as follows:

> The District Court and the Court of Appeals saw no need for respondents to "tie each theory of antitrust impact" to a calculation of damages. That, they said, would involve consideration of the "merits" having "no place in the class certification inquiry." That reasoning flatly contradicts our cases requiring a determination that Rule 23 is satisfied, even when that requires inquiry into the merits of the claim. The Court of Appeals simply concluded that respondents "provided a method to measure and quantify damages on a classwide basis," finding it unnecessary to decide "whether the methodology [was] a just and reasonable inference or speculative." Under that logic, at the class-certification stage any method of measurement is acceptable so long as it can be applied classwide, no matter how arbitrary the measurements may be. Such a proposition would reduce Rule 23(b)(3)'s predominance requirement to a nullity.

Id. at 1433 (citation omitted); Amgen Inc. v. Connecticut Retirement Plans and Trust Funds, 133 S. Ct. 1184, 1194-95 (2013) ("Rule 23 grants courts no license to engage in free-ranging merits inquiries at the certification stage. Merits questions may be considered to the extent—but only to the extent—that they are relevant to determining whether the Rule 23 prerequisites for class certification are satisfied.").

With these governing standards in mind, the court first turns to the Daubert inquiry, inasmuch as the expert opinions in the case are the primary evidentiary means chosen by plaintiffs to discharge their burden under Rule 23. Following the Daubert inquiry, the court turns to the Rule 23 analysis.

B. Daubert Inquiry Respecting Mr. Haunschild's Analysis

At the outset, it is appropriate to consider the reticulate process of creating an accurate air model. As noted by the defendants' counter-expert, Mr. Machado, an air model has many moving parts. The accuracy of the model bears a strong positive relationship to the correct inputs being used -- inputs that represent the actual conditions at the facility and its emission sources. For instance, one must, in an exposure setting such as this, initially identify emission sources for a

discrete time period, such as a single year, and examine what those sources are emitting.

The emission sources are identified by reviewing plot plans, process diagrams, and operational information for the specific time period involved. In then estimating the output from these properly identified sources, one gathers emission data, in order of preference, from (1) Continuous Emission Monitoring figures to isolate the production of targeted pollutants, (2) stack testing data, (3) test data from similar facilities within the same industry sector if appropriate, and, (4) in the absence of other site-specific data, special emission factors for a given process and pollutants, such as the EPA's AP-42 Compilation of Air Pollutant Emission Factors. It seems obvious, however, that the AP-42 data must be rigorously analyzed to assure, inter alia, that it is transferable across different types of facilities.

After gathering this emission data, one then determines the amount of targeted pollutants produced from each source. A variety of considerations is important here for the modeling software's algorithms to produce an accurate depiction. Mr. Machado observes as follows:

> For example, fumes captured by a furnace and ducted from a building have associated buoyancy (due to high

> temperature) and momentum (due to inherent velocity), which give way to "plume rise" that is incorporated in the model and influences dispersion. Conversely, fugitive releases from a building that are incorporated in the building envelope have a different treatment in the model. Likewise, emission sources may be concentrated at a point, such as a stack, or distributed along a roof line, such as a roof monitor. The AERMOD air dispersion model used by Mr. Haunschild has the capability to account for these various source configurations, which are represented as point, area, and volume sources. Corresponding to each of these representations, the model has specific source parameter requirements, such as stack diameter, gas temperature and exit velocity for point sources, which are used to define the source and are incorporated in the subsequent dispersion analysis. Accurately representing each of these parameters is important in producing accurate air modeling predictions. Facility records, operational and process understanding, and facility plot plans or aerial photographs typically characterize source configurations. Two sources with equal emission rates, but with different source configurations, can result in orders of magnitude differences in offsite concentrations. Thus, application of a rigorous methodology to accurately represent each emission source is crucial to producing accurate air dispersion modeling predictions.

(Machado Am. Rep. at 6 (emphasis added)).

The disciplined, methodical, and necessarily time-consuming, process described above brings the matter full circle -- the accuracy of the model depends upon the rigor applied in the input gathering process. An in-depth data investigation, a searching historical analysis, an excruciating attention to detail, and a methodology designed to wring error out of the process seems especially apropos here, where one is attempting

to recreate decades of emissions, plume movements, and particle depositions.

In light of these general concerns, there are an array of challenges to Mr. Haunschild's opinions. Foremost, however, is the very foundation of the methodology he employed in this case. Bearing in mind that plaintiffs must, on a class-wide basis, show significant exposure to a proven hazardous substance, Mr. Haunschild nevertheless concedes that he did not attempt to model present or historical PM_{10} exposures by actual members of the putative classes. He instead has effectively analyzed the matter using a regulatory-based, not an exposure-based, model. Specifically, he has, in his Scenario A and Scenario B models, consistent with a regulatory-based approach, taken the highest emission rates he can find from various sources and years of emissions records and placed them into the air model. He then assesses whether the Alloy Plant's emissions have an "impact," which he defines as exceeding certain regulatory levels, on the surrounding community.

Mr. Haunschild and the plaintiffs unapologetically concede that his study "did not intend to prove a specific level of harm." (Pls.' Daub. Resp. at 10); (Haunschild Mar. Aff. ¶ 5 ("The purpose of my study was not to prove a specific level of

harm.")). The difficulty with his approach, however, is quite apparent. It is designed to produce a hypothetical and prospective worst case scenario. His permit-based approach is understandable in the public safety setting for which it is intended, namely, where a regulator desires to know the possible effects that a facility's emissions may have on a given community. It tells the fact finder in a medical monitoring case very little, if anything, however, about whether a class of individuals suffered significant exposure to a proven hazardous substance. For that reason, it is unhelpful to the trier of fact apart from the question of reliability.

There are abundant concerns respecting reliability as well when Mr. Haunschild's opinions are closely scrutinized as required by Behrend. A discussion of some of those reliability concerns follows.

1. Mr. Haunschild's Use of Maximum Emission Estimates

The use of maximum emission estimates mentioned above in relation to helpfulness also impacts the reliability analysis. Again, Mr. Haunschild has used the highest emission rate from various sources and years without regard to what is actually being emitted by the Alloy Plant. (See, e.g.,

Haunschild Am. Rep. at 3 ("All boiler emission rates used the maximum emission rate documented for Boiler No. 4 because this boiler had detailed data available. All furnaces are represented using their respective maximum emission rate . . . ."); id. ("The Title V permit application and emissions inventories prepared and submitted by the Alloy facility were used as data sources for maximum emission rates . . . .")). Lest these excerpts leave any doubt respecting their disregard of actual emissions, Mr. Haunschild's nine-step methodology found in his March 12, 2013, affidavit provides, at step 6, for him to "[i]nput the maximum emission rate for each emission point" at the Alloy Plant. (Haunschild Mar. Aff. at 6).

Mr. Haunschild's approach of using maximum, not actual, emissions is apparently rooted in his permit-based modeling method previously deemed unhelpful.[10] He has emission

[10] Mr. Haunschild also faults the lack of actual emissions data, at points blaming the defendants and DEP for not providing him the information necessary to input actual numbers into his model. (See, e.g., Haunschild Mar. Aff. at 6 ("Defendants have not provided the data required to conduct a year-by-year analysis."); id. at 7 ("[T]he emissions data that I was able to obtain from the . . . DEP provided by Defendants reported only average emissions rates (and not actual emission rates), thereby obscuring the actual emission rates.")).

The defendants assert that they voluntarily produced to plaintiffs "a wide array of documents containing emissions related data, including, for example, copies of Certified Emissions Statements from 1993 to 2004 and 2007 to 2011." (Defs.' Daub. Reply at 5). The issues are now fully joined

sources borrowing data from one another, across many years, and then combining them with the unexplained assumption that the target maximum emission rates all occurred in the same year.

One example of the infirmities in this approach is Mr. Haunschild's failure to account for emission data accuracy and integrity over time in light of technological advancements in its recording and evaluation. As noted by Mr. Machado,

> [T]his procedure inherently ignores the limitations in available emission estimation methods in the early years and assumes all data have equivalent quality and were produced with present-day scientific rigor. This is obviously not true. For instance, the 2011 inventory relies upon emission factors developed from stack test data, while earlier inventories rely upon emission factors developed from unrelated facilities and reported in AP-42 . . . . By cherry picking the data to find the highest possible emission rate, Mr. Haunschild ensures that his current model does not represent conditions at the facility at any point during recent operations.

(Machado Am. Rep. at 7).

In sum, Mr. Haunschild's model is a speculative conglomeration of data that is unreliable on the question of

---

following multiple, lengthy discovery extensions provided by the court. In the event that the plaintiffs believed that the hundreds of thousands of pages of discovery provided by defendants was inadequate, they could have timely moved months ago to compel the production of additional documents. The same is true respecting subpoena procedures for any documents in the possession of DEP, a non-party. Having failed to do so, they cannot now complain respecting any discovery violations.

exposure in, around, and beyond the Alloy Plant. This basic methodological flaw infects his entire analysis. It makes for a patently unreliable measure of significant exposure to harmful substances, which is the central issue in this personal injury, ambient air case.[11] There are, however, multiple other difficulties with the process he has used, as discussed in the succeeding subsections.

2. Emission Source Location and Configuration

As noted, the location and configuration of emissions sources is of critical importance in producing an accurate air dispersion model. Mr. Haunschild has at times configured his emission sources at the wrong location within the Alloy Plant, with some of those sources having dimensions and emission characteristics that are not based in fact.

---

[11] **Mr. Haunschild's use of the hypothetical and random is also evident in his choice of the 2010 PM_{10} "potential to emit" readings from Attachment I of the Alloy Plant's Title V Permit. The question is, of course, not what the emission sources at the Alloy Plant might put out at their maximum operating capacity under a worst-case scenario, but, rather, what they were actually outputting for the decades-long class periods chosen by plaintiffs. As noted by Mr. Machado, "The 'potential to emit' [regulatory target] is a hypothetical, maximum emission rate, assuming the facility operates continuously at its maximum capacity under worst-case operating conditions." (Am. Machado Rep. at 8).**

Initially, in assessing the percentage of PM_{10}, a subset of total particulate matter, produced by each emission source, Mr. Haunschild draws on the data for total particulate emissions in 1993, although he mistakenly labels the data as coming from 1995. Total particulate matter, of course, says little respecting the all-important PM_{10} emissions, a substance which, along with dioxin, represents the two toxic substance "legs" of his opinions in this matter.[12] (See § III.B.7 at 75).

Another source error is seen in Mr. Haunschild's attribution of various percentages of emissions to certain sources. This is most evident in the process he used to account

---

[12] The court has searched for a reasoned, science-based explanation for this variance and its effect on Mr. Haunschild's model. The only apparent reference is found in his March 12, 2013, affidavit, which provides as follows:

> Defendants have attempted to disparage my modeling study by alluding to my reference to total particulates. I assessed total particulates as one aspect of my study but I also assessed the PM_{10}. I have clearly shown that the site is exceeding by a wide margin the applicable limits for PM_{10} and for dioxins. There is no validity to Defendants' claim that reference to a total particulate emission rate in any way invalidates the results of my modeling results and my conclusions regarding the radius of impact.

(Haunschild Mar. Aff. ¶ 25). This brief, and unfortunately, conclusory explanation, coming in the March 12, 2013, affidavit that was Mr. Haunschild's opportunity to have the last word on the matter, does not allay the concerns expressed. It also appears somewhat in tension with his deposition testimony on the point. (See infra § III.B.7 at 75).

for the total percentage of emissions from the Alloy Plant. In so doing, he accounted for approximately 40 percent of the total Alloy Plant emissions by assigning that percentage to certain emission sources but then, inexplicably, he assigned the remaining 60 percent to a ground-level emission source he calls "RAWMAT," apparently meaning raw material processing facilities.

From a methodological perspective, two serious concerns arise from this unusual approach. First, Mr. Haunschild's methodology places this powerful raw material toxin emitter on the Alloy Plant boundary line, thus guaranteeing a significant, and skewed, offsite impact. Second, and of far greater concern, is that the approach does not appear to tie with reality.

For example, the emission rate Mr. Haunschild uses for raw material handling is over 10 times larger than the actual raw material handling emission rate reported by the Alloy Plant in 1995. This oversight appears to grossly overstate the offsite impact theorized by Mr. Haunschild.

Mr. Machado notes the obvious: "[T]he location of the emission source and its relation to adjacent building structures and the offsite point of interest will all influence offsite concentrations." (Machado Am. Rep. at 5 (emphasis added)). In

sum, this single source configuration and location problem has caused Mr. Haunschild to input into his model a colossal toxic emitter at the Alloy Plant boundary that bears no resemblance to the quantity and location of emissions at the Alloy Plant.

3. The 2,000-Fold Emission Calculation Error

Next, in extracting the "potential to emit" data from the Title V Permit application, which again uses maximum possible emission figures rather than actual, Mr. Haunschild made a mathematical error overstating bag house emission rates appearing in the 2010 Title V application by a factor of 2,000. He first assigned the "potential to emit" figures discussed earlier to four particular emissions sources at the Alloy Facility but then performed a calculation that, through an errant multiplication, resulted in emissions figures for those sources that are 2,000 times too high. Specifically, he misunderstood that emissions were reported in pounds per year not, as he assumed, tons per year. In attempting to then convert the figure to pounds per year, he erroneously multiplied by 2,000.

His handling of that shortcoming provides the gatekeeper little comfort respecting the integrity of the

remainder of his work when he offers superficial explanations to counter apparently quite substantive criticisms. In sum, he appears to have initially admitted the error during his January 29, 2013, deposition, but he then attempted to compensate for it by suggesting the error was not an oversight at all based upon his view that it had no effect on the final model.

He opined as much by explaining that the mistaken and 2,000-fold inflated emission figure from the 2010 Title V number he input to the model was "virtually the exact same [maximum emission] numbers [for the same inputs]" found in the 1995 emissions inventory. (Haunschild 2013 Dep. at 66). Stated another way, Mr. Haunschild appeared to confess the 2,000-fold error but believed he could take another figure from another year and simply substitute it for the erroneous figure.

In sum, he searched the 1995 reported data set for an emission number that fit the needs of the moment and, in the process, treated that 1995 figure as interchangeable with the errant 2010 Title V Permit "potential to emit" data that was over a decade removed therefrom. That approach is not a product of science.

A further alarm raised by that approach is Mr. Haunschild's own uncertainty about how interchangeable the 2010

Title V Permit numbers and the 1995 emissions inventory data actually are. (Compare, e.g., id. at 70 ("the numbers are exactly the same"); id. at 75 ("They're very close."); id. at 76 (they are "almost [the] exact same numbers")). His imprecision on so critical a matter, all the while attempting to compensate for a simple but profound mathematical error, is a matter of methodology, not credibility.

To the extent that characterization is not apparent from the discussion heretofore, it appears that Mr. Haunschild strayed from explaining to misleading in an effort to allay concerns about the magnitude of his mistake. He testified as follows: "It was an error. But the error had been caught and already rectified, already evaluated." (Id. at 68). This explanation in his 2013 deposition suggests that Mr. Haunschild had caught and accounted for the error prior to that evidentiary examination.

Following a break in the deposition, however, during which time he spoke by phone with an associate who helped him prepare his January 2013 amended expert report, he curiously appears to admit that he may have known about the error prior to preparing the report but did not correct it or, alternatively,

that he found out about the error for the first time during the telephone conversation during the deposition break:

Q. We need to pin down when this . . . [mistake] was available to you, when you had that information.

A. I don't recall the date.

Q. Do you have any explanation today for why the . . . first time we have any of this information about this [mistake] comes today after a break and after you've been confronted with those errors? Why is that the first time we're hearing about this?

A. I would have to speculate to tell you why the --

Q. I don't want you to speculate. I want you to tell us -- well, let me back up. I presume this knowledge [about the error] that you've imparted to us after the break came sometime before the break? Or did it come during the break?

A. The clarification came during the break. There's not an issue here. There's a misrepresentation of calling it Title V. The modeling did not change.

Q. I just want to understand. We have to have the record very clear here. You're saying that after you were confronted with this information prior to that break, you talked to . . . [your associate] on the telephone, and that's when you became aware of what you came back and testified about; is that correct?

A. That's at least when the entire picture was clear to me.

Q. Is there a time when the picture was foggy to you?

A. I believe there was a -- . . . [my associate] talked about certain things that were done on the project. And he may have spoken with me about something that he had done that was a calculation that he redid and it didn't have any impact. I think there was a discussion of that some time

> back. But I certainly was not aware of exactly the scenario here in detail. I was aware that he had corrected some stuff.
>
> Q. When was that?
>
> A. I don't recall.
>
> Q. Was it before December the 10th?
>
> A. It may have been mentioned to me prior to it. But see, again, there was an incredible amount of calculations, redo, digging through your redacted data. And so if [the associate] mentioned that to me, it was part of the entire, we did this, we did that. I wasn't aware of the issue that it was the '9[5] emissions inventory data and correlated to the emissions -- the same percentage of the Title V until I got clarification now.
>
> Q. Today during that break?
>
> A. Yeah. But I've been told that there was no impact on any -- he acknowledged that -- he acknowledged he made a calculation error in the past in part of the discussion. It was just part of the entire thing of putting the modeling together.

(Id. at 84-87). Mr. Haunschild's confusion respecting (1) the source of so significant an error, (2) the time at which he was first informed about it, (3) its true effect on the model, and (4) the alleged interchangeable nature of the data (about which he equivocates) present grave concerns respecting the degree to which the scientific method, much less his espoused nine-step protocol, was actually followed.[13]

[13] All the more distressing is the fact that Mr. Haunschild appeared to bristle at one point as defense counsel attempted to gather details respecting his methodology. (See Haunschild 2013

The 2,000-fold error might be dismissed as harmless if its potential effect were not so shattering. In sum, the error, taken in concert with his misrepresentation of some of these bag houses as area sources, results in the four bag houses it affects as accounting for approximately 90 percent of his modeled PM_{10} concentrations in the immediate vicinity of the facility. This error alone appears to decimate the reliability of his "Scenario A -- Recent" modeling results.

4. The Location and Dimensions of Emission Sources

As noted, it is critical in the air modeling process to accurately estimate (1) emissions, (2) their sources and the dispersion characteristics of the sources, and (3) the location, size, and physical characteristics of the sources, such as the temperatures of the gas being released from the stacks and their velocity upon release. Mr. Haunschild, however, has incorrectly located emissions sources at the Alloy Plant and their dimensions appear to be in error at times. For example, the

---

Dep. at 147 (witness responding to counsel "Did you model 20,000 pounds an hour and get something different than what I'm showing? Is that why we're so anal on this stuff?")).

western portion of the raw material handling source is reflected as being in the Kanawha River.[14]

Of even greater concern is the fact that these errors were so profound that they caused his AERMOD software package to produce alerts during the modeling process. While he testified during his deposition that his assistant "evaluated" those alerts and "considered" them, he provides virtually no detail on so critical a point. (Haunschild 2013 Dep. at 42). The aforementioned problems represent far more than matters of weight or credibility.

5. Concerns Raised by Scenario B -- The Historical Model

All of the foregoing difficulties affect Scenario A. Some obviously affect Scenario B as well. Scenario B also presents additional methodological concerns of its own. Mr. Machado sets the stage for these difficulties as follows:

> The nature and magnitude of airborne emissions from a facility depend upon several factors, including the type of operations conducted by the facility, production rates, and raw material usage. An accurate

[14] This is, at a minimum, another troubling instance of imprecision. Again, Mr. Haunschild had the last word on this serious and inexplicable sourcing error with his March 2013 affidavit. He handles the matter conclusorily, without explanation for why it occurred, how it might be corrected, and whether re-modeling is necessary.

> assessment of historical emissions must consider how these operational factors changed over time. Furthermore, production rates, product lines, and raw material usage tend to fluctuate with the cost of raw materials, the demand for specific ferroalloys, and other market forces. Over time, facilities also add, remove, and/or upgrade equipment. This is especially true for facilities with long operational histories, like the Alloy facility.

(Machado Am. Rep. at 10). Mr. Haunschild appears to have only nominally investigated these important matters. He has chosen the far simpler, but inherently unreliable, approach of assuming current day operations existed essentially unchanged historically and without any pollution controls whatsoever from the time the Alloy Plant opened until approximately 1970.

At least two considerations illustrate the flaws inherent in this approach. First, site diagrams show the Alloy Plant used different furnaces and manufactured different products over time. Certain documents produced in discovery reveal evidence of variations in emission sources over time, even in the past 20 years. Mr. Haunschild suggests that he considered the matter but his methodology suggests otherwise at various points.

For example, Mr. Haunschild in his historical model used the emissions data from a certain furnace in order to develop emission rates for two different buildings. The

difficulty is that emissions by the furnace, from which he extrapolated his rates, have increased by approximately 40 percent over the past 20 years. Mr. Haunschild testified that he was unaware whether the subject furnace even operated during the historical period he attempts to model. (See Haunschild Dep. at 130 ("I don't know if I've got the time frame for each one of the furnaces.")). Additionally, Mr. Haunschild used 2010 emissions data from the number 15 bag house ("Furnace 15") to develop his historic emission rate for what he appears to refer to as Building 19F. While Furnace 15 produced 14,891 tons of alloy in 2010, it was not in operation between 1993 and 1997.

Second, as noted, one key assumption underlying Mr. Haunschild's historical analysis is that the Alloy Plant operated without any pollution control equipment up to approximately 1970. He has failed to investigate though how emissions that occurred within the confines of Alloy Plant buildings managed to escape therefrom into the atmosphere and in what quantity. In this same vein, a 1993 modeling report indicates that fugitive emissions from two buildings vented through large structures called monitors located on their roofs. Mr. Haunschild, however, ignores any dissipating, dilutive, or

other effects the monitors may have had on modeled fugitive emission sources.[15]

In sum, Mr. Haunschild does not consider in any substantial way how the Alloy Plant has changed over time or the role that passive building structures have played historically in capturing emissions from internal Alloy Plant operations. It is for these reasons and others that it is methodologically unsound to assume the Alloy Plant operated historically in a static sense, much less at its current maximum capacity.

6. The Reliance Upon and Use of a Revoked Exposure Standard

Another difficulty with Mr. Haunschild's methodology is his use of the now-revoked 50 µg/m^3 NAAQS for annual average PM_{10} concentrations, even after the error was brought to his attention. The substance PM_{10} was at one time documented to have chronic health effects when long term exposure was coupled with

[15] Respecting raw material handling, Mr. Haunschild has not considered whether dust control sprays were used historically to suppress emissions during raw material handling. His co-expert, Mr. Horsak, notes that "very few environmental controls were used in operations" for the period 1934-1970. (Class Cert. Rep. at 8 (emphasis added)). Assuming controls were not used, it seems inexplicable for Mr. Haunschild to conclude, as he has, that historic emissions from this source would be approximately a hundred-fold higher than present day.

a defined threshold. The EPA quantified the annual PM_{10} exposure threshold to be 50 µg/m^3, a regulatory threshold which no longer exists. See American Farm Bureau Federation v. E.P.A., 559 F.3d 512, 539 (D.C. Cir. 2009) ("The EPA reasonably decided that an annual coarse PM[10] standard is not necessary because, as the Criteria Document and the Staff Paper make clear, the latest scientific data do not indicate that long-term exposure to coarse particles poses a health risk.").[16]

Mr. Haunschild's explanation for his continued use of the now void threshold is a bit confounding. In essence, he

---

[16] Mr. Horsak expressed some misgivings concerning the use of these annual averages by Mr. Haunschild and perhaps the models themselves:

> [T]here are multiple sources, emission sources, from that facility historically. And you would have to look at this type of information from each of those sources to see what the composite source fingerprint looks like. You can't just look at a single measurement from run number 1 on June 2010 and say that's exactly what has been released since 1934.

(Horsak 2013 Dep. at 170-71). He additionally observed as follows:

> Greg's maps, his plume maps, are just all over the place. And these are just based on like 24-hour averages. So if he would run 24-hour averages for 365 days a year times 1934 to 2011, he's going to get hundreds and hundreds and hundreds of plume maps that are all different.

(Id. at 221-22).

asserts that it was appropriate to use the withdrawn standard inasmuch as the Alloy Plant operated during a time period when the measure was still in place. Defending such a position would seem to defy commonsense as much as it would represent a patently unscientific approach in light of the EPA's subsequently published views on the matter.

7. The Use of Total Particulates as Opposed to PM_{10}

In his Scenario B model, Mr. Haunschild's emissions analysis for the Alloy Plant power generation unit indicates his mistaken use of total particulates, rather than their PM_{10} subset, from bag houses 5, 6, 7A, 7B and 7C for the power plant boiler. He then applies that inflated emission rate to each of the four stacks at the power plant, in the process multiplying the erroneous emission rate by four. The mistake appears so fundamental and yet it was hardly explained by him during his deposition:

> Q. So one cannot say that your historic models are accurate representations of PM-10 concentrations, correct?
>
> . . . .
>
> A. It appears that we used total particulate for the model rather than PM-10. So I'd say it sounds correct.

(Haunschild 2013 Dep. at 105).

8. The Extrapolation of One Source's Emissions to Others

The discussion supra illustrates that extrapolation of emissions from one source to another, especially over a long period of time, is fraught with peril when attempting to model exposure. Mr. Haunschild's opinions provide an additional example of this phenomena with respect to the power plant and raw material handling units. According to Mr. Haunschild's historical model, these two sources account for 70% of emissions. Accepting that analysis as accurate, his handling of the remaining 30% dramatically affects reliability. The following summary from Mr. Machado is illustrative:

> **Most of the remaining 30 percent of emissions in Mr. Haunschild's report either cannot be reproduced, even during his deposition . . . , or are not scientifically justifiable. For example, he uses uncontrolled furnace 3 "potential to emit" emission rates to represent emissions from six other furnaces, without any consideration of the capacities of the individual furnaces. Recent records indicate furnace 3 has a much higher throughput rate than the other furnaces. In conclusion, due to a combination of errors and overstatements, Mr. Haunschild's emission estimates are inflated and unreliable, and at the very least do not reflect PM_{10} emissions.**

(Am. Machado Rep. at 12).

One way in which Mr. Haunschild attempts to compensate for many of these methodological shortcomings is to suggest that

so long as he can defend total site-wide emission rates, based on annual reporting from the Alloy Plant, individual source emissions are essentially unimportant. It seems beyond dispute, however, that an accurate, and science-based, air dispersion model requires accurate source location, configuration, and emission results. A total emissions figure simply cannot compensate for the more precise inputs demanded by the air modeling process.

9. Dioxin Emission Modeling Irregularities

Mr. Haunschild's modeling of dioxin emissions and impacts is problematic in several respects from a gatekeeping standpoint. As noted, emission rates from actual facility records are far superior to hypothesized extrapolations. As noted by Mr. Machado, "Mr. Haunschild . . . did not use any established hierarchy to rank the available sources of emissions data. He apparently overlooked facility stack test data and instead used estimated dioxin emission rates that are not representative of actual facility emissions." (Machado Am. Rep. at 13-14). This is a significant methodological problem. One illustration suffices.

In 2010, at the EPA's request, the Alloy Plant measured and provided to the federal regulator a sample of dioxins in bag house dust. The testing indicated low dioxin levels -- so low in fact that they are dramatically lower than the emission factor used by Mr. Haunschild in his model. Defendants produced this testing data in March 2012. Mr. Haunschild admitted he did not consider them. The emission factor used by Mr. Haunschild, once again, was the estimated "potential to emit" emission rates from the 2010 Title V Permit application, which was compiled prior to the EPA mandated stack testing. This omission, and its undeniable effect on his emission model, is indicative of a failure to conduct a science-based search for the most representative data possible upon which to base one's conclusions. Mr. Haunschild's failure to do so here is indicative of some measure of laxity in rigorously adhering to the scientific method.

Assuming Mr. Haunschild's methodology for dioxin emission rates was scientifically defensible, the exposure conclusions he draws therefrom are not. They are far too generalized. Dioxins and substances known as furans reside in a category of structurally similar compounds that are commonly referred to as congeners. They exist on a spectrum inasmuch as they have varying levels of toxicity. Mr. Haunschild's use and

discussion of total dioxin emissions is thus of little utility. The total dioxin emission figures tell one little if anything about risk assessment or toxicological response.

For example, EPA developed for risk assessment purposes a framework for comparing the toxicity of different dioxin compounds individually and mixtures thereof. Mr. Machado explains as follows:

> In this framework, the toxicity of the 17 most toxic dioxin and furan compounds are compared to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxins (2,3,7,8-TCDD). Since . . . 2,3,7,8-TCDD is the most toxic dioxin compound, it is assigned a toxic equivalence factor (TEF) of 1, while less toxic compounds are assigned TEFs ranging from 0.0003 to 1.0 (US EPA 2010). A TEF of 0.0003 means that a compound is 1 ÷ 0.0003 = 3,333 times less toxic than 2,3,7,8-TCDD. The sum of the concentration of each congener times its TEF is expressed in units of 2,3,7,8-TCDD toxic equivalents (TEQ). Since TEQs reflect the toxicity of the dioxin mixture, most risk-based standards are for 2,3,7,8-dioxin TEQ. Further, since the TEQ method involves multiplying congener concentrations by TEFs less than or equal to one, the concentration of a dioxin mixture in TEQs is generally much, much lower than total dioxin/furan concentrations.

(Machado Am. Rep. at 15).

When confronted with the lack of precision on his dioxin opinions, Mr. Haunschild confessed the limits of his expertise in the area:

> Q. And are there dioxins that don't have -- well, do you know what a TEF is?

A. I probably do. Define what does TEF stand for?

Q. Yes.

A. I don't recall TEF.

. . . .

Q. Do you know how many congeners -- maybe you answered this -- how many congeners are considered to have dioxin-like toxicity?

A. I do not represent myself as a dioxin expert.

Q. So is that a no, you don't know?

A. Correct.

(Haunschild 2013 Dep. at 159, 175)

As noted, Mr. Haunschild's dioxin measure is based on the AP-42 estimated emission factors for all dioxin and furan congeners rather than just those congeners with dioxin-like toxicity. He could not even testify during his 2013 deposition whether the AP-42 estimates included emission factors for dioxins that lack dioxin-like toxicity. Further, Mr. Haunschild's emission rate used to calculate the dioxin figure was not adjusted for the toxicity of individual congeners relative to 2,3,7,8-TCDD as described above.

Inasmuch as his modeled dioxin concentrations do not consider the toxicity of the dioxin mixture actually emitted

from the Alloy Plant, the concentrations are not comparable to risk-based standards or appropriate for assessing health risks.

10. The Void Respecting Plume Depletion and Particle Deposition

Another void in Mr. Haunschild's model arises from his failure to consider how the plumes from the Alloy Plant depleted as a result of their depositing particles in the course of their travels away from the Alloy Plant. His failure to do so leaves one with another significant question mark regarding his methodology. Specifically, Mr. Haunschild's model does not appear to account for environmental forces that tend to remove particulates from the plumes once they left the Alloy Plant.

As the plumes travel away, they leave particles on the ground below, which in turn reduces the amount of total particulate matter, including PM_{10} and dioxin, in the remaining plumes. An accurate and scientific model would thus consider particle deposition and resulting plume depletion. Most troubling is that the AERMOD software package that Mr. Haunschild used has algorithms to simulate the plume depletion and particle deposition effect. Mr. Haunschild inexplicably has not used those features. One is thus left to guess respecting

the impact of this effect on his model which, again, spans many years.[17]

11. Unexplained Use of Time Intervals for Scenarios A and B

As noted, Scenario A is titled Recent Impact Area From 1989 to 1997, and Scenario B is labeled Historic Impact Area From 1945 to 1963. One would reasonably assume that the identified time frames were meaningfully represented in the respective models. That does not appear to be the case according to this excerpt that occurred during Mr. Haunschild's 2013 deposition:

> Q. Now, let me ask you while I'm on this subject -- there's a time frame that is attached to the title for the Scenario A model. That's 1989 to 1997. What does that mean? Why is that attached?
>
> A. It was an identifier of -- I think it started with a file that I originally had that in. So it was kept as the same name, I believe.
>
> Q. Does it have any significance?

---

[17] It is noted that the defendants also challenge Mr. Haunschild's use of the AERMOD program rather than a similar software package known as CALPUFF. The court need not reach that challenge. Two considerations are, however, noteworthy. Mr. Machado offers a reasoned and well-supported analysis of why the CALPUFF package was necessary here in his amended expert report at pages 15-16. Second, Mr. Haunschild has used CALPUFF in the past, but, as noted, it appears he did not do so here inasmuch as it would have required him to upgrade his CALPUFF package. (See Haunschild 2013 Dep. at 129-130).

> A. Apparently not a whole lot. Because this also shows 2004, 2010. I think it became primarily a naming convention on the spreadsheet as things went along as we were continuing to dig through the data.
>
> Q. Is the same true with respect to Scenario B -- Historic, Exhibit Number 16, which has attached to it the years 1945 to 1963?
>
> A. It was -- did you give me the spreadsheet?
>
> Q. Oh, I didn't yet, but I will.
>
> A. And was there a question?
>
> Q. The question is whether the years 1945 to 1963 with respect to Scenario B -- Historic have any significance?
>
> A. I think that scenario again is that there was a naming convention of the spreadsheet.

(Haunschild 2013 Dep. at 89-90). The two aforementioned models constitute the central pieces of work accomplished by Mr. Haunschild in this case. Their importance to the plaintiffs' presentation cannot be overstated. The lack of rigor on so basic a matter is alarming and essentially unexplained. Further, it does not appear that the dioxin opinions and analysis are associated with any time frame, much less a mistaken one. These considerations, like so many others discussed heretofore and apparent in the record, raise significant concerns in assessing Mr. Haunschild's methodology.

Based upon these and other considerations, the court concludes that Mr. Haunschild's opinions are inadmissible under

Rule 702 and Daubert. The opinions are not based upon sufficient facts or data, there are serious questions respecting whether they are the product of reliable principles and methods, and the principles and methods actually used have not been reliably applied to the facts of the case. It is, accordingly, ORDERED that the motion to exclude Mr. Haunschild's opinions be, and hereby is, granted.

C. Daubert Inquiry Respecting Mr. Horsak's Analysis

As noted, Mr. Horsak was retained to establish the class-affected area. In 2005, former plaintiffs' counsel Tom Urban, along with another lawyer, James Humphries, retained Mr. Horsak and 3TM to evaluate toxicity in the Alloy Plant vicinity and the potential to litigate claims related thereto. On October 6, 2005, 3TM provided to plaintiffs' former counsel its 2005 Report. Prior to any testing or modeling, Mr. Horsak predicted that Alloy Plant neighbors within a 3-mile radius had been significantly exposed to its emissions.[18]

[18] The defendants draw an adverse inference from this early conclusion. They likewise express concerns about the impact that a litigation motive may have had generally upon Mr. Horsak's methodology in arriving at his opinions. For example, they question whether he used the same scientifically rigorous methods that he would have used in an academic study as used here while on retainer to plaintiffs' former counsel. The

In January 2006, at Messrs. Urban and Humphries request, 3TM conducted the soil and attic dust sampling central to Mr. Horsak's opinions expressed now seven years later. Only

---

following exchange during Mr. Horsak's deposition is illustrative:

> Q. All right. Is 28 an appropriate number or an adequate number of samples from which to draw conclusions?
>
> A. I would say for the purposes that we are looking at here, it's an adequate data set.
>
> Q. Meaning the purpose of litigation?
>
> A. The purpose of class certification.

(Horsak 2012 Dep. at 192). There are other indications of the same, troubling mindset elsewhere in the materials submitted by Mr. Horsak:

> My work methods were adequate for the intended purpose, and with sufficient "intellectual rigor." It is an acceptable engineering/scientific practice to consider a wide spectrum of work methods for any given project or assignment, litigation or otherwise. There is no engineering/scientific requirement that each and every project, assignment, task, or activity must be chocked full of "intellectual rigor" in order to be meaningful and correct.

(2013 Class Cert. Rep. at 56). As noted by the Supreme Court years ago, and reiterated by our court of appeals, "the objective of Daubert's gatekeeping requirement is to 'make certain that an expert . . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.'" Cooper v. Smith & Nephew, Inc., 259 F.3d 194, 200 (4th Cir. 2001) (emphasis added) (quoting Kumho Tire Co. v. Carmichael, 526 U.S. 137, 152 (1999)).

two of 52 soil samples were tested. Of the 25 attic dust samples and one composite filter sample, only one came from a home owned by one of the representative plaintiffs within approximately three miles of the Alloy Plant.[19] Also, only three of those attic dust samples were tested for dioxin.

1. Reliance Upon the Now-Excluded Opinions of Mr. Haunschild

Initially, it appears that Mr. Horsak has relied heavily upon Mr. Haunschild's opinions and air modeling. In his September 21, 2012, videotaped deposition he testified as follows concerning his failure to perform air modeling of the type conducted by Mr. Haunschild:

> Q. Did you make any effort to relate the emissions from the plant to the results from the attic dust sampling that you did?
>
> A. To the extent that those contaminants found in the attic dust were emitted by the Alloy Facility, that was pretty much the limit of that. I didn't do any type of calculations or air dispersion modeling, if that's what you're asking.

(Horsak 2012 Dep. at 263). During his January 13, 2013, deposition, he further referenced his reliance upon Mr.

[19] Defendants note Mr. Horsak incorrectly identified two of the dust samples as coming from the attic when they in fact originated in the basement. Two others were composed of a mixture of attic dust and living area dust. The sample reporting the highest level of arsenic came from the basement.

Haunschild's flawed air modeling opinion:

> I relied on . . . [Mr. Haunschild's] report that is in one of the appendices [to Mr. Horsak's Amended Report]. . . . [W]hatever information that was in the final report, the maps that he generated.

(Horsak 2013 Dep. at 33; see also id. at 210 ("Combined with Greg Haunschild's dispersion patterns, I would say that [the three dioxin samples in the case] . . . are representative.")).

Mr. Horsak also noted in his 2013 Class Certification Report that he relied upon "[t]he results of air dispersion modeling performed by Mr. Greg Haunschild . . ." among other sources. (2013 Class Cert. Rep. at 56; see also id. at 57 (stating "the air dispersion modeling performed by Mr. Haunschild fully supported the results of the 3TM 2006 testing, thereby validating that 3TM's data set is 'scientifically reliable.'")). Indeed, Mr. Horsak's 2012 affidavit and 2013 Class Certification Report reference Mr. Haunschild many times.

Once Mr. Horsak learned that the defendants would challenge his opinions as being based upon Mr. Haunschild's work, he filed a March 12, 2013, affidavit stating as follows: "My findings and opinions, while fortified by Mr. Haunschild's work, stand independently. The field testing and other work I

have performed substantiates significant impact to the local residences from the historical operations of the Alloy Plant."

Despite having ample opportunity to do so, Mr. Horsak has not specified the precise quantitative and qualitative role Mr. Haunschild's opinions and work played in reaching his own conclusions in the case. For that reason, Mr. Horsak's opinions might be deemed inadmissible solely based upon their reliance upon Mr. Haunschild's now-excluded opinions. There are, however, independent concerns raised by Mr. Horsak's methodology as discussed below.

2. Use of Preliminary Testing Data to Fashion Final Opinions

Using the soil and attic testing conducted in 2006, which is the central data set for his opinions expressed now seven years later, Mr. Horsak charts a 3-mile radius of impact around the Alloy Plant. As noted multiple times by the defendants, the 2006 Report testing was apparently preliminary in nature:

> For example, in January 2008, Mr. Horsak sent an email to Plaintiffs' counsel listing the follow-up tasks that he thought should be conducted in order to provide "credible evidence" that emissions from the Plant "have impacted the plaintiffs." Email from Randy Horsak to Craig B. Giffin and James F. Humphreys, dated January 3, 2008 (attached to Motion as Exhibit

> **21), at 1. Despite this and other repeated recommendations to validate the 2006 sampling, the following was never undertaken:**
>
> - **no additional sampling and analysis done to fill in data gaps in the 2006 Report and no tightening and reissuing of the 2006 report (Ex. 5 at 73:24-74:12);**
> - **no household attic dust sampling for Smithers or Montgomery (Id. at 76:19-21; 76:25-77:2);**
> - **no correlation with toxic release inventory data (Id. at 82:13-19);**
> - **no background or control group sampling and analysis (Id. at 82:21-83:2; 91:25-92:14; Horsak Aff., Ex. C at 57-58);**
> - **no evaluation of particle size distribution (Exhibit 5 at 106:3-8);**
> - **no forensic fingerprinting (Id. at 106:14-107:7; Horsak Aff., Ex. C at 57).**
>
> **It is particularly surprising that Mr. Horsak never conducted any air sampling, despite noting that ambient air should be pursued and despite that being the only exposure medium at issue in this case. See Ex. 18 at 6; Ex. 3 at 81:22-82:4. Even though his 2006 Report acknowledged several limitations of the data it presented, Mr. Horsak testified in 2012 that he did no additional work to validate or confirm his prior preliminary findings. Ex. 19 at 17; Ex. 5 at 174:21-175:4; Ex. 3 at 20:11-21:12.**

(Defs.' Daubert Mem. in Supp. at 49).

3. Mr. Horsak's Use of Voluntary Screening Levels

As noted, Mr. Horsak compared the attic dust samples to voluntary regulatory soil screening levels to conclude that significant concentrations of toxins were found in the radius of impact. He further implies that a level in excess of the risk-based level is a cause for concern.

As the defendants note, the regulatory soil screening levels are designed to allow parties to assess whether to voluntarily remediate an area impacted by a chemical. If a sample is found to be in excess of a particular regional or West Virginia risk-based level, it does not mean that a particular area is in fact a toxicological hazard. Cf. Mann v. CSX Transp., Inc., No. 1:07 Civ. 3512(DAP), 2009 WL 3766056, at *5 (N.D. Ohio Nov. 10, 2009) ("[T]he EPAsoil cleanup level represents a threshold for the cleanup of contaminated soil, not a danger point above which individuals require medical monitoring."), aff'd, Hirsch v. CSX Transp., Inc., 656 F.3d 359 (6th Cir. 2011).

4. Soil and Attic Dust Sampling Does Not Support a Three-Mile Class-Affected Area

Mr. Horsak's 2006 sampling program was "geared to 'detect and confirm' any contamination near the Elkem plant, and to substantiate the [2005 Report]." (Memo. from Mr. Horsak to Counsel at 1 (May 1, 2008) (emphasis added)). This early characterization by Mr. Horsak is a compelling indication of the self-imposed limits of his methodology and the true scope and depth of the 2006 sampling program. Apart from that observation, the defendants note the difficulties with a "detect and confirm" methodology when attempting to draw the dimensions of a class-affected contamination area.

The methodology recommended by the EPA for purposes of "identifying areas of contamination" includes the use of (1) adaptive cluster sampling, (2) stratified sampling, (3) systematic/grid sampling, or, where no prior professional knowledge exists, (4) simple random sampling. United States Environmental Protection Agency, Selecting a Sampling Design, available at http://www.epa.gov/quality/qksampl.html. In contrast with these science-based measures, the court notes that Mr. Horsak's attic and dust samples were not randomly selected based on an objective protocol. They were selected by

plaintiffs' counsel, with vague guidance from Mr. Horsak:

> You know, my opinion is a couple dozen [samples would be enough]. And within this area, make sure they are kind of scattered around. And then left it up to [plaintiffs' former counsel] to actually go to individual potential plaintiffs, or actual plaintiffs at the time, I'm not sure which, and discuss with them and get legal access and physical access to their properties that we could test.
>
> And so he would go and select the various houses within that -- within the confines of what I just explained. And typically we would counsel him to get a few extras in case someone was not home or they didn't have an attic, et cetera.

(Horsak 2013 Dep. at 194 (emphasis added)). It is also noted that when Mr. Horsak was questioned concerning why he only tested two of the 52 soil samples taken, he responded as follows:

> Q. And who made the decision to test only two soil samples in this effort to produce Exhibit No. 2?
>
> A. Well, it was probably the Humphreys law firm. They didn't want to spend the money at the time to test that. I don't know for what reason.

(Id. at 65). The rather intense involvement of counsel in the sampling and testing process is not indicative of the disciplined use of the scientific method. The lack of scientific rigor in sampling, the foundation upon which Mr. Horsak's conclusions are based, is quite troubling. See, e.g., Allgood v. Gen. Motors Corp., No. 102 Civ. 1077(DFH)(TAB), 2006

WL 2669337, at * 10 (S.D. Ind. Sept. 18, 2006) ("Questions as to [the expert's] choice in data sampling go to the heart of his methodology."). All the more troubling is that Mr. Horsak did not scrutinize for selection bias the testing sites chosen by counsel.

5. The Inability to Validly Extrapolate From the Few Samples Taken

It appears that Mr. Horsak's small sampling program was not sufficient to make judgments respecting the class-affected area that he posits. It is important to note the samples he failed to collect and compare them with those actually collected. For example, he collected 12 samples from the town of Boomer, which is included in his three-mile radius of impact. He failed, however, to collect any samples from the towns of Smithers, Powellton, Montgomery and from rural Fayette County, all of which likewise reside within the three-mile radius. Mr. Horsak even expressed some concerns respecting extrapolation:

> Q. And it's your testimony that the 25 attic dust samples are sufficient to gain an understanding of the exposure of those 2,460 houses [in the radius of impact]?
>
> A. The 25 samples, you can't take that and extrapolate to every house. But with that 25-sample aliquot -- I

> mean, 25-sample group shows is that there is a generic problem around the Alloy plant that extends to at least -- in my opinion, at least three miles, and according to Mr. Haunschild several miles, that are a result of emissions from the plant. And to go back and do additional samples -- Let's say that you triple the number of samples within that radius. It's my belief and my opinion that you would find comparable type results, possibly higher, possibly lower here and there, but the overall dataset is going to be essentially the same.

(Horsak 2013 Dep. at 218-19 (emphasis added)).

Mr. Horsak does not explain the basis for his "belief" and "opinion" respecting what additional sampling would show. With that explanation lacking, his views amount to simple ipse dixit. That is troubling when the matter involves the very foundation upon which he grounds his opinions, namely, the testing results from the sampling that is under attack.

6. Statistical Significance of the Samples

Another area of concern is Mr. Horsak's conclusions about the statistical significance of the limited samples taken. For example, of the 25 attic dust samples, only three were tested for dioxin.[20] When asked if the positive result from

[20] There are concerns initially respecting the way that the three samples were chosen from the group of 25. Mr. Horsak's 2012 affidavit states that the three samples were randomly selected. While he admitted during his 2013 deposition that was

those three samples could be deemed statistically significant over the vast area modeled, Mr. Horsak stated that it "raises a red flag at a minimum. . . . [and] more likely than not . . . that there has been some type of Dioxin impact to that community at those three locations at those distances." (Horsak 2012 Dep. at 62 (emphasis added)). When pressed on the point, he reverted again to his apparent view of relaxed rigor in the current posture of the litigation. (See id. ("I wouldn't agree with you that the three tests that have been done is of no significance in a class certification hearing.")). When pressed even further, he stated as follows:

> It's sufficient to draw a conclusion that there is more likely than not a Dioxin impact at those locations at those distances and I don't recall what those distances are . . . .

(Id. at 63). Just moments later, however, he conceded that additional sampling "would be helpful." (Id. at 64). This is in comparison to his December 10, 2012, affidavit submission confidently, but conclusorily, stating that his data set was "of statistical significance." (Horsak Dec. Aff. at 6).

One finds an additional discussion of statistical significance in Mr. Horsak's 2013 Class Certification Report,

---

not the case, he represented anew in his March 2013 affidavit that they were randomly selected. (Compare Horsak 2013 Dep. at 208-09, with Horsak Mar. Aff. at 9).

but grave concerns remain. In his March 12, 2013, affidavit, his final filing in the case, he attempts to buttress his sampling and statistical conclusion with reference to presidential election polling. That would seem to be a transparently inapt comparison.

In the end, Mr. Horsak admits he did not perform any additional statistical analysis of the three samples, such as calculating a confidence interval -- which would have indicated the reliability of his estimate -- or a p-value -- which would have measured the consistency between the results actually obtained and the explanation for those results occurring purely by chance. The failure to do so, with samples so critical to the defensibility of his methodology and results, is difficult to comprehend.

7. Excluding Alternative Sources Capable of Producing the Substances

The defendants note a significant obstacle to a finding of helpfulness and reliability respecting Mr. Horsak's opinions: "The 2006 sampling data is only relevant to establishing the class-affected area if Mr. Horsak is able to demonstrate that the source of the detected substances is the Alloy Plant." (Defs.' Daubert Mem. in Supp. at 50). First,

there are other potential sources for the contaminants. Appalachian Fuels, a bankrupt company that plaintiffs attempted to join as a defendant earlier in this case, was rejected by Mr. Horsak as having responsibility for the substances found in the samples, but nevertheless referred to by him as a "potentially significant confounder." (Horsak Dec. Aff. at 15). Other potential sources for some of the substances include cigarette smoking, burning of residential waste, a wood burning stove, and certain occupations such as coal miner and truck driver, which are quite common in the area. (See Sept. 28, 2012, Rep. of Dr. Robert C. James).

During his deposition, Mr. Horsak was asked how he could pin responsibility on the Alloy Plant for the limited findings revealed by his sampling program. His response was decidedly unscientific:

> Q. [Y]ou have some understanding that there are other facilities in and around and up and down the Valley there where the Alloy Plant is.
>
> You did not take any kind of specific look at any of them. Is that correct?
>
> . . . .
>
> Q. . . . . Did you look at any of them in any detail at all?
>
> . . . .
>
> THE WITNESS: Not in detail, no.

> **BY MR. EMCH:**
>
> **Q. All right.**
>
> **A. When you look at the quantities of emissions from this plant, you clearly have the classical 800-pound gorilla sitting in your backyard, and to the extent that this 800-pound gorilla releases certain types of contaminants that are detected downwind a half-a-mile, a mile, two miles, more likely than not, it's the result of the 800-pound gorilla and not the 50-pound monkey that is across town.**

(Horsak 2013 Dep. at 104-05). A well-grounded methodology purposed on following the scientific method irrespective of results would not so easily cast aside potential confounders. While Mr. Horsak elaborates a bit more in his final report, there are readily available, and acceptable, methods for eliminating confounders, as pointed out at length in the defendants' memorandum in support.

For example, Mr. Horsak could have conducted chemical fingerprinting to determine the source of the dioxin and furan congeners he found in the three attic dust samples. He did not do so. In his January 2013 Class Certification Report, however, he asserts that he analyzed "the primary Dioxin and Furan congener patterns of the 3 household attic dust samples" and that the results showed that the congener patterns "are very similar, indicating a common source." (Id. at 57). He then concludes that "the Appalachian Mining [sic] facility is not a

significant source compared to the Alloy Facility." (Id. at 63). He adds though "[a]t some point, the chemical fingerprinting of Dioxin/Furan congener patterns may prove helpful to this Lawsuit." (Id. (emphasis added)).

That fingerprinting analysis was apparently undertaken by Mr. Machado. He discusses his analysis of the dioxin and furan congeners from the stack tests at the Alloy Facility as follows:

> In January of 2006, 3TM measured dioxin concentrations in three dust samples collected from homes near the facility. In his amended expert report, Mr. Horsak considers the 17 congeners with dioxin-like toxicity and notes that the dioxin and furan congener patterns in the three household dust samples are very similar to one another, indicating a common source. Mr. Horsak asserts that the facility is the primary source of dioxins in the household dusts. To support his opinion, Mr. Horsak develops a chart that compares the three household dust dioxin profiles, but fails to consider the baghouse dust samples collected from the Alloy Plant in 2010 pursuant to the EPA request on the chart. While the congener patterns in the household dust samples are similar to one another, they are very different from the congener patterns in the baghouse dust samples collected at the facility in 2010. . . . [T]he dioxins in the attic dusts are not related to the facility. Additionally, dioxin concentrations in the baghouse dust sample were almost 100 times less than the concentrations that Mr. Horsak measured in residential attic dust. Thus, the facility cannot be used to explain Mr. Horsak's measurements of dioxins in dust.

(Machado Am. Rep. at 17-18 (emphasis added)). Despite the rather conclusive nature of Mr. Machado's chemical

fingerprinting analysis, plaintiffs have stood silent in their briefing on the point, leaving Mr. Horsak's incomplete methodology subject to a full frontal assault. All that Mr. Horsak offers in response to Mr. Machado's testing is a single sentence in his March 12, 2013, affidavit: "The stack test data does not provide conclusive evidence that the Dioxins measured in the attic dust samples came from sources other than the Alloy Plant." (Horsak Mar. Aff. at 10). That conclusory observation on so important a matter is quite troubling.

It is true that Mr. Horsak offers a brief explanation in his Class Certification Report concerning why Appalachian Fuels and other alternative sources would not qualify as reasonable confounders. The entirety of that explanation is patently deficient, however, in view of objective, and apparently conclusive, scientific results obtained by Mr. Machado from the fingerprinting analysis.

As the record presently stands, the dioxin composition analysis indicates a common emission source that is not the Alloy Plant. The conclusions reached by Mr. Horsak are, of course, not a concern at this juncture. His incomplete methodology, however, is, and while his conclusions pointing to the Alloy Plant are testable, he chose not to test them. That

approach is inconsistent with a disciplined use of the scientific method.

Based upon the foregoing considerations, the court concludes that Mr. Horsak's opinions are inadmissible under Rule 702 and Daubert. The opinions are not based upon sufficient facts or data, there are serious questions respecting whether they are the product of reliable principles and methods, and the principles and methods actually used have not been reliably applied to the facts of the case. It is, accordingly, ORDERED that the motion to exclude Mr. Horsak's opinions be, and hereby is, granted.

D. Class Certification Analysis

Based upon the court's ruling excluding the opinions of Messrs. Haunschild and Horsak, the proposed classes have, at a minimum, become unascertainable. Plaintiffs propose essentially three objective criteria by which to define the classes, namely, (1) whether the person resided in, worked in or attended school in the radius of impact, (2) whether the person did so for a continuous period of certain temporal lengths, and (3) whether the person has been diagnosed with an illness or disease attributable to substances released from the Alloy

Plant. Absent the excluded expert opinions, class-wide proof of those three objective criteria is unavailable and the class is not susceptible to objective identification. There are, however, a host of other impediments to certification even assuming the plaintiffs' expert corps remained intact.

First, the classes are no more ascertainable with the expert proof than they are without it. One of the "objective" criteria upon which plaintiffs ascertain their classes is whether the putative class member has been diagnosed with an illness or disease attributable to substances released from the Alloy Plant. That diagnosis, and hence class membership, will come only after each putative class member is examined and the individualized, and potentially subjective, determination made respecting whether they are presently suffering from one of the many illnesses or diseases that might be caused by one or more of the substances released from the Alloy Plant. Dr. Dahlgren concedes as much. His January 11, 2013, amended expert report provides that, "Once the class is certified we will remove the injured class members from the medical monitoring group." (Dahlgren Am. Exp. Rep. at 10). This subjective, individualized, and frankly overwhelming, protocol plainly results in objectively unascertainable classes.

Second, all three representative plaintiffs, Adelle Newbell, Carolyn Turner, and Terry White, appear to have been diagnosed with medical conditions for which they seek medical monitoring. (See White Ans. to Inters.; Newbell Ans. to Inters.; Turner Ans. to Inters.). This presents the very unusual situation in which the representative plaintiffs may not qualify for membership in the particular class they purport to represent.

Third, no circuit court of appeals has ever approved certification of a medical monitoring class action. From a general perspective, the plaintiffs have offered no compelling reason to adopt a different approach. Irrespective of how they attempt to explain otherwise, the individual nature of the medical monitoring elements of significant exposure and significantly increased risk present inestimable problems from a manageability perspective, not to mention the individual nature of ascertaining whether those putative class members falling within Class II might avoid a limitations defense.

In Rhodes, the court declined to certify a proposed medical monitoring class action for eight diseases that involved a single defendant indisputably responsible for releasing a single, non-naturally occurring harmful chemical, into a single

water district well field, with a class definition having a retrospective period of approximately one year.

By comparison, the plaintiffs herein propose certification of a medical monitoring class action for more than 30 diseases that involves seven defendants, potentially responsible for releasing 17 substances, nearly all of which are naturally occurring, into the ambient air of multiple communities rather than a direct water-line route, with two class definitions having a decades-long retrospective period.

Fourth, the plaintiffs cannot demonstrate that their proposed classes are cohesive. As noted in Rhodes, the cohesiveness requirement demands that "the plaintiffs . . . offer evidence that commonly proves the elements of a medical monitoring claim for each proposed class member." Rhodes, 253 F.R.D. at 374. It is apparent that the plaintiffs are unable to discharge their burden on the point based on considerations coming from both sides of the adversarial divide.

On the plaintiffs' side of the equation, assuming that Mr. Horsak's and Mr. Haunschild's opinions remained a part of the case, the 80-year history of exposure, at varying levels, over a wide geographic area, would seemingly give rise to a host of individualized exposure circumstances and dose variations

that would militate strongly against a cohesiveness finding. See, e.g., Gates v. Rohm and Haas Co., 655 F.3d 255, 266 (3rd Cir. 2011) (in a case involving 2,000 people in a neighborhood of 4,000 homes, with air modeling expert evidence, the plaintiffs alleged chemical contamination by neighboring industrial complex; the court of appeals concluded that "Plaintiffs cannot substitute evidence of exposure of actual class members with evidence of hypothetical, composite persons in order to gain class certification. . . . The evidence here is not 'common' because it is not shared by all (possibly even most) individuals in the class. Averages or community-wide estimations would not be probative of any individual's claim because any one class member may have an exposure level well above or below the average.").

It is incumbent upon the plaintiffs to show that they were significantly exposed by the defendants to a hazardous substance under Bower and that they suffered an increased risk of serious disease as a proximate result. If the plaintiffs had a set of substances produced only by the Alloy Plant, it is conceivable that they could use common proof to demonstrate common causation. In real terms, however, many individualized factors affect the causation inquiry. For example, numerous alternative sources of the substances exist in

daily life, including the use of certain household products, the incineration of residential waste, certain vocations and hobbies, and even living near mining sites and highways. There is also the problem of Appalachian Fuels. While the plaintiffs' experts now attempt to minimize its role, the belief appears to have been otherwise when plaintiffs moved to join Appalachian Fuels in February 2012.[21] These considerations also destroy cohesion.

There are a veritable host of other impediments to certification apart from the now-absent class-wide expert proof left in the wake of Mr. Haunschild's and Mr. Horsak's elimination from the case. Plaintiffs have thus failed to discharge their burden under Rule 23 and, consequently, it is ORDERED that the motion for class certification be, and hereby is, denied.[22]

---

[21] In their motion to amend the complaint, plaintiffs sought to join Appalachian Fuels "based on new information . . ." that it was "an additional polluter in the proposed class area." (Mot. at 1). They additionally alleged in the proposed amended complaint that Appalachian Fuels ran "a strip mining operation within 3 miles of the . . . [Alloy Plant] which lies on a mountain top approximately due north of the Alloy Plant[, and m]any of the Hazardous Substances other than silica may also have been generated from the mining operation." (Prop. Am. Compl. at 3).

[22] On March 19, 2012, the defendants moved to dismiss. The court holds the motion in abeyance pending notice from the defendants, filed on or before October 30, 2013, whether they

IV.

Based upon the foregoing discussion, it is ORDERED as follows:

1. **That the plaintiffs' motion for class certification be, and hereby is, denied; and**

2. **That the defendants' amended motion to exclude the opinions tendered by the plaintiffs' expert witnesses Greg Haunschild, James Dahlgren, and Randy Horsak, be, and hereby is, granted as to Messrs. Haunschild and Horsak and denied as moot respecting Dr. Dahlgren.**

The Clerk is directed to forward copies of this written opinion and order to all counsel of record and any unrepresented parties.

DATED: September 30, 2013

John T. Copenhaver, Jr.
United States District Judge

---

consider the motion to dismiss to present a live controversy following the entry of this memorandum opinion and order.